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EDGE

PlayStation ■ Saturn ■ Nintendo 64 ■ PC ■ Arcade ■ Net ■ Multimedia ■ CGI



Red Alert at Westwood Studios

D2: First evidence of M2 power

The Future ripens for Apple gaming

JAMMA: Konami fights back

WaveRace 64: Miyamoto magic

Apple has long been an underachiever in the videogames industry, but now it finally has the technology to compete with the unassailable PC. Edge examines the troubled relationship that has existed between the Mac and the games community and asks if it's all about to change

Issue thirty-nine

Future

December

39


SCRABBLE
MATSUSHITA
NINTENDO
NEOGEO
MULTI
YOD GEES
RACED



Apple was a company that grew out of **the hacker** ethic in which games played a pivotal role...

If you look at *Doom 2* on every platform it's been released on, **the Mac version has the highest resolution** and the **biggest screen**. That's because of the Power PC... it rules as a game chip

If it is to continue having strong sales in the home, **Apple needs games...**

Apple's gaming strategy comes to fruition... see page 54

*The **Future** is almost here...*

inside



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Photography: Jude



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ECTS (top right and above). N64 (above right)





D2 (left). *Castlevania* (above)





Wave Race 64 (left). *Crash Bandicoot* (above)

Photography: Michael Donald







REGULARS



Edge performs an in-depth autopsy on September's JAMMA show/**page 6** • The Nintendo 64 goes on sale in North America and literally flies off the shelves/**page 9** • The Autumn ECTS is a great improvement on Spring's effort/**page 10** • Alias unveils its new graphics software suite, *Maya*/**page 14**

Cutting Edge

*The latest **news** from the world of interactive entertainment*

JAMMA 96: Konami enters hi-tech coin-op arena

The company makes a startling return to form with some great games and a new board

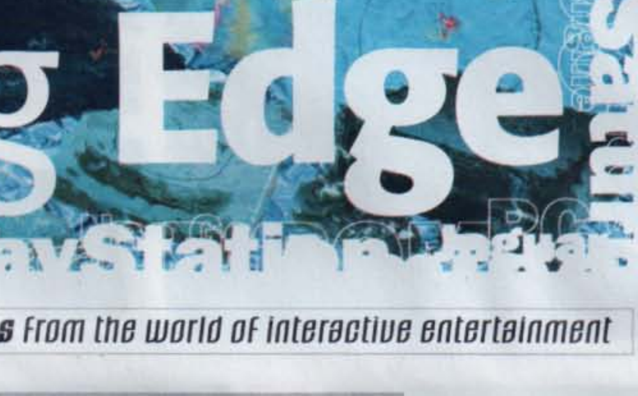


Almost complete, *VF3* was due to ship out to arcades just two days after JAMMA ended

For anyone needing proof that rivalry is just as capable of stifling creativity as it is of stimulating it, this years JAMMA show more than qualifies. Namco and Sega, engaged as always in bitter feud, failed to show anything new, whereas Capcom and Konami, free of antagonism, had new coin-ops and new hardware to reveal. Apart from a few welcome bouts of innovation though, racing games once again dominated the show. At least this year an influx of ski games challenged the monopoly usually enjoyed by titles involving sports cars.

The big excitement in the Sega booth was, of course, an almost complete version of *Virtua Fighter 3* (**E**37). It seems beginners can enjoy it without knowing all the special moves whereas experienced VF combatants can employ their current skills.

Next to *VF3*, **Tetsuya Mizuguchi** was on hand to present a 99% complete version of *Sega Touring Car Championship*: the first game from Sega's AM Annex (**E**37). The game seems to be more technical than most racing coin-ops, with pit-stops included to add realism. Players have to qualify for decent places on the start-up grid and are rewarded with an extra track if they come in first a lot. In line with the game's realism, all four selectable cars have different handling styles. The game proved popular with

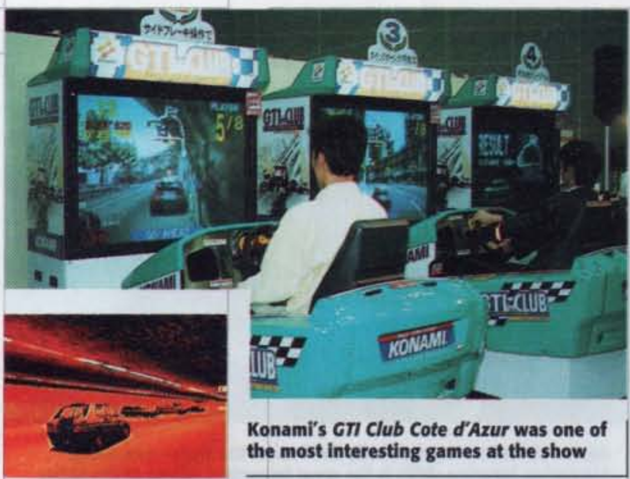


***Virtua Fighter 3* was the big attraction at Sega's booth. Especially popular was a huge monitor showing the incredible intro sequence**



JAMMA takes place in the huge Makuhari Messe venue. This year's show lacked a single dominating product: *VF3* and Konami's Cobra were the main pulls





Konami's ***GTI Club Cote d'Azur*** **was one of the most interesting games at the show**





Winding Heat **(top) is more traditional than** ***GTI. Solar Assault*** **was presented in two cabinets: regular (left) and deluxe simulator (right)**



Namco's ***Dancing Eyes*** **is a thoroughly strange System 11 puzzle game**

JAMMA crowds, even though touring cars are not as popular in the east as in Europe.

The only new game introduced by Sega was AM1's *Super Giant Slalom*, designed to compete with Namco's successful *Alpine Racer*. The graphics were impressive with one stage taking place on a torch-lit piste. Also from AM1 was *Wave Runner*, again competing with Namco – this time in the burgeoning, yet already flooded, water sports genre. This is perhaps the best ski game yet with a great cabinet, unmatched realism and new gameplay features.

AM3 was absent, but staff promised two new titles for the AOU show next February. Ski Rally anyone?

AM1'S *WAVE RUNNER*, COMPETING AGAINST NAMCO'S *JET SKI*, IS THE BEST SKI GAME YET WITH A GREAT CABINET, UNMATCHED REALISM AND PLENTY OF EXCITING NEW GAMEPLAY FEATURES

Namco managed to disappoint everyone almost immediately by not presenting its expected System 33 board. However, it did show off *Tokyo War* for the second year. This *Virtual-On* style arena battle game allows four players to take control of tanks and blow each other up. Players can get into teams or just indulge in a huge free-for-all. The gameplay is interesting and the graphics are detailed and effective.

Aqua Jet (see page 86) supplied the first of the important new Namco titles. Visually, it is the best of the water ski lot and the gameplay is slightly different, based on jumping rather than racing.

Also on show was *Alpine Surfer 2* offering improved polygon backgrounds, more detailed runs (tunnels, towns at night) and a link-up option. Players can choose from three different skiers with contrasting skiing styles.

Konami, rising phoenix-like from a two year decline, was one of the only companies to come up with a new game concept. *GTI Club Cote d'Azur* may look like just another car racing game, but it is loaded with innovative touches (see page 87). The company also introduced *Winding Heat*, a more traditional racing coin-op offering 14 different cars, three courses and various play modes. A twin cabinet setup is also planned. The last title was *Solar Assault*, a 3D version of *Gradius* with multi-directional scrolling.

The big news from Konami though was the unveiling of its new graphics board – the Cobra – developed in conjunction with IBM. With a main CPU based on IBM's Power PC 603, the board is allegedly capable of dealing with between one and five million polygons per second, making it more





Sega and Namco tried to match each other game for game. Hence, ***Alpine Racer 2*** **(left) and** ***Super G Slalom*** **(right)**

Who is it?

This buxom brunette has been making game players and developers drool at her hard-hitting, in-your-face babe antics. Girls with guns meets bears and dinosaurs. Does life really get any better than this?

Continued next page

Continued

Cobra stats

As with all modern hardware releases, a mass of statistics has been released by Konami to wow the punters:
one to five million polygons per second
50 to 250 million pixels per second
a resolution of 640x480



to 1,280x1,024
Sub-pixel anti-aliasing
Gouraud shading as standard
Parallel lights, and 'environment' lights
Perspective mapping and 'environment' mapping
In real terms, however, these stats mean nothing without the backing of some quality killer apps.



Namco presented tank battle title, *Tokyo Wars*, for the second time

powerful than Model 3. Plus, it allows a high-res image of 1,280x1,024 pixels.

To exhibit the Cobra's abilities, Konami presented a demo of a fighting game known only as 'PF73 Project'. Although it was an early version, the game was impressive enough to stir up much curiosity about itself and the board it was running on.

Konami was not alone in showing off hardware. One of the biggest attractions of the show was Capcom's fantasy beat 'em up *Red Earth* (known in the UK as *Warzard*, see E38), the first game to run on the new CPS III board. Combatants are well designed and play is progressive, allowing fighters to gain experience throughout the game.



***Aqua Jet* (above) is graphically the best of the water race titles. Mastering jumping skills is the most important aspect of the game**

link-up option. SNK also presented *Neo Bomberman* by Hudson which offers two, twoplayer modes – cooperative and battle – and loads of weapons to pick up.

Taito presented *Fighters Impact* (E38), *Puzzle Bobble 3* (30 stages, 560 different maps) and a demo of horizontal shoot 'em up *Darius G* boasting polygon spacecraft.

THE BIGGEST VIDEOGAMING TRENDS OF JAMMA '96 SEEMED TO BE LINKED CABINETS, TAG TEAM BEAT 'EM UPS AND VARIOUS TYPES OF SKIING GAME

The self-explanatory *X-Men vs Street Fighter* drew in the crowds and boasted a newish feature, 'Variable Heroes Battle'. This allows players to switch between different fighters during a bout (rather like SNK's Tag Battle). It will even be possible to change the fighter during a special attack.

Street Fighter 3 was only present as a rolling video demo. At the moment it looks very similar to *SFII*, but with four new characters. The game is still shrouded in mystery, partially because Capcom want to concentrate on *Street Fighter EX*, written by thirdparty developer, Akira. It retains *SFII*'s six button system and linear gameplay, but includes polygon fighters. It seems there's plenty of life in the old *Street Fighter* yet.

Amongst the also-rans, SNK stood out with its inspirational beat 'em up, *Mizuna Encounter Super Tag Battle* (snappy title that). This title introduced the tag concept (as seen in *X-Men vs SF*), but only allows players to do it when their characters are in certain sections of the screen. There is also a

Atlus had two promising beat 'em ups in its booth: *SF*-clone *Groove on Fight* (using the ST-V board) and Model 2 title, *Ultimate Domain*. The latter featured great polygon fighters and gameplay which married *VF*-style fighting with *Tekken*'s special attacks.

To conclude, the biggest trends of JAMMA '96 seemed to be linked cabinets, tag team beat 'em ups and ski games. Konami, frankly, stole the show with a full range of games and some cool hardware. Capcom, though, came in a close second and proved, once again, that 2D games can still compete in a seemingly 3D dominated marketplace. **E**



It is...

Lara Croft, star of Core Design's forthcoming pyramid romp, *Tomb Raider*. Not only does Lara have a mass of moves at her disposal, but she does them with attitude – an icon for women everywhere





***Tag Battle* (above) and *Neo Bomberman* (right)**





Capcom showed a plethora of beat 'em ups including three *Street Fighter* titles. *X-men vs SF* was popular

N64: official launch date overlooked in US frenzy

Controversy and confusion reign as key retailers sell N64s three days early







The LucasArts title, *Shadows of the Empire*, will be released in October in Japan, adding another 'must have' game to the N64's threadbare software library

Amidst scenes of consumer mayhem, the N64 was launched in the US at 12am on September 29. Within three days the country's initial allocation of 350,000 units had sold out, no doubt partially due to the $50m advertising blitz with the tag-line, 'Change the System'. A bullish Nintendo is claiming that it took the PlayStation 13 weeks to reach the same installed base and boasted that it could sell 1.5 million units by the end of the year. **Jeffrey Griffiths**, Electronics Boutique's senior vice president seems to agree: 'In all my years of retail experience, I've never seen this type of frenzied consumer demand for a home videogame system'.

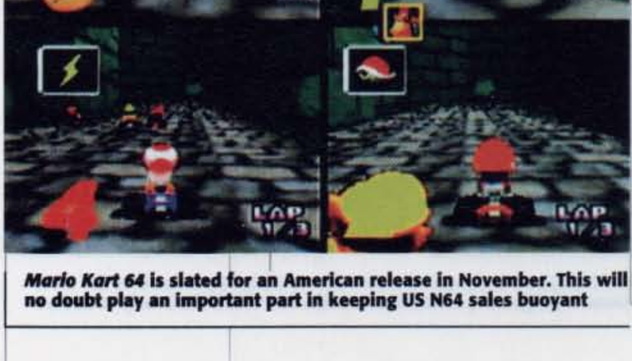


The sales were achieved despite a troubled launch. Stores received their machines on the Wednesday evening and by Thursday several, led by retailers K-B and Electronics Boutique, had already broken ranks and started selling. This, coupled with the fact that around 50% of machines had been bought before they hit the stores, led to supply drying up rapidly.

After nearly two weeks, NoA suddenly announced that it had 'found' a further 450,000 units for the US market. Speculation had been mounting that pressure was being put on the Japanese arm to free machines up, but the company denies this, saying that the new units are simply the product of a 'more efficient' production process.

Cynics accuse NoA of manipulating the market to increase hype and boost sales. Unsurprisingly, *Mario64* is currently selling 1 to 1 with the hardware, but the lack of any other quality titles has already impaired the Japanese market and NoA is working frantically to prevent that happening in the US. A further four games (*Wave Race 64*, *Mortal Kombat Trilogy*, *Killer Instinct Gold* and *Shadows of the Empire*) are definite for '96, bringing the software library up to eight. However, it is debatable whether that will be enough. Rumours suggest that the lack of machines and software is giving a boost to PlayStation sales. E





Mario Kart 64 **is slated for an American release in November. This will no doubt play an important part in keeping US N64 sales buoyant**





What is it?

This self replicating phenomena was invented by lonely, anti social computer hackers in the early eighties. Despite comprising of little more than a few lines of code, the concept panicked computer users everywhere. No one was safe

Packed Autumn **ECTS** dispels Spring gloom

But Nintendo is nowhere to be seen amongst the crowds





Once again that giant PlayStation banner proudly dominated the Olympia showroom, only slightly obscured this year by a first world war fighter plane (above)

It is...

The computer virus which recently received an unexpected PR boost when Jeff Goldblum used one to foil the invading aliens in ID4. Luckily, the spindly creatures' main computer was Mac compatible

From Sept 8th to the 10th, developers and publishers, seemingly oblivious to the looming 64bit era, treaded their mostly 32bit wares to a packed Olympia in what may well prove to be the last ECTS dominated by Sony and Sega's machines.

However, this definitely did not look like a show inhabited by jumpy producers clearing out the last of their PlayStation and Saturn games to an indifferent crowd. The event was the biggest yet with plenty of titles on offer - even if, in some cases, it was the same old faces with the same old products. Rather like an American show, the fight was on for the largest, best, but primarily the most expensive stand. Undoubtedly much money had been spent, which, looking on the bright side, can only be good news for the industry's confidence in Europe.

On entering Olympia **Edge** couldn't fail to notice the impressively large, perhaps even cavernous, stand of Acclaim. Riding high just a few short years ago, now not quite the force it was, despite some serious cash outlay on Probe, Iguana and Sculptured Software. *Turok: Dinosaur Hunter* was seemingly the show's only N64 game, giving retailers and developers of lesser stature a first chance to play with Nintendo's super-console. Although the game looked like a relatively competent *Quake* clone, it is perhaps symbolic of Nintendo's disregard for the Euro market that this









Destruction Derby 2 (top), F1 (left) and MicroMachines 3 (right) proved that the UK is a strong 32bit force. MDK (centre) is American-made, but with British help of course

DATA STREAM

Amount Sony has spent on its pan European PlayStation campaign: **£70m**
Further amount they plan to spend by Christmas: **£40m**
Sony's projected figures for number of European PlayStation owners by Christmas: **2 million**
Number of PlayStation games on sale by Christmas: **200**
Number of PC 3D Engine boards NEC plans to sell in the first three months: **150,000**
Number by the end of 1997: **500,000**
Distance an adult can walk on a single chocolate chip: **150ft**
Number of chocolate chips need to walk around the world: **875,000**
PC shipments in Japan for 1995: **5.7 million**
Annual amount Americans spend on weight reduction products: **$33bn**
Number of donuts sold by Dunkin' Donuts every minute: **3,055**
Number of times every can of Spam would circle the globe if put end to end: **ten**
Amount of cans of Spam consumed every second in the US: **3.8**
Number of dust mites in a typical bed: **6bn**
Number of pigs needed to play Babe in the movie of the same name: **48**

thirdparty product should be showcasing the N64 singlehandedly.

As is customary, Virgin had a huge themed stand: The Virgin Brotherhood, complete with an imposing black monk at the entrance. A big brand, and successful, Virgin are riding high, as confirmed recently by their market share which shows them as industry leaders. With *Resident Evil* sales going ballistic the mood was buoyant, and rightly so with sure-fire sellers such as *Command & Conquer: Red Alert* on the way. As is the trend, it's gone SVGA, the result looking suspiciously like Amiga classic, *Cannon Fodder*, at times (see page 48)...

Screamer 2 made an appearance on PC and is sure to satisfy devotees of the original. The much vaunted, and oft' previewed *Spot Goes to Hollywood* is slated to appear before Christmas, unsurprisingly there was no such promise for *Heart of Darkness*.

Number 2 in the market share table, Electronic Arts has updated an old favourite to delight the public. *Soviet Strike* looked a lot better than previous efforts, with photo-realistic textures and a true 3D environment (see page 70). Having signed up World Cup '98 it comes as no surprise that EA has managed to squeeze in another FIFA title, the imaginatively named *FIFA 97* no less. This joins an already extensive sports line up, including *NHL 97*, *NBA Live 97* and, another blast from the past, *Madden NFL 97*.

Eidos made their ECTS debut with an impressive stand, attracting lots of visitors - although it is unclear whether the flocks of male viewers were there to see the games or the *Tomb Raider* babes who sauntered about the stand. Having spent wisely on development studios in the past year, Eidos is no doubt awaiting what it sees as its rightful place in the Premier League of publishers. Core's *Tomb Raider* and Eidos' own *Deathtrap Dungeon* will surely secure them a play-off place. Support from *CrimeWave* on the Saturn, and promising race game, *Full on F1*, on the PC will do no harm. Also on show was ATD/Silicon Dreams' *The Incredible Hulk*: a *Streets of Rage*-style scrolling beat 'em up which, by all accounts, may disappoint fans of Marvel's jade-skinned testosterone monster.



Eidos kept things low-key for the unveiling of Ian Livingstone's promising new title

Taking a leaf out of Sony and Nintendo's book, Sega has made a point of buying in the most impressive thirdparty games rather than relying solely on it's own goods. The seemingly ubiquitous *Tomb Raider* looked as impressive as any other Saturn title. *Exhumed* (*Lobotomy*) looked to be a fine firstperson shooter (a genre almost entirely overlooked on the Saturn) and Scavenger provided *Scorcher* and *Amok* (ever dependable to bring gasps of awe at shows - but will they ever actually be released?). *NiGHTS* was presented just a week or two before it's release, along with forthcoming titles *Virtua Kids*, *Fighting Vipers* and *Daytona USA Championship*.

Possibly providing the silverware for Sega this season are it's Sega PC titles. Pre-release versions of *Bug!*, *Sonic* and *Sega Rally* all looked impressive. *Rally* was particularly








Clockwise from top left: *Deathtrap Dungeon* (Eidos), *Crash Bandicoot* (Naughty Dog), *Red Alert* (Westwood Studios), *The Hulk* (Eidos), *Interstate '76* (Activision) and *Disruptor* (Insomniac)

Continued next page

VR Pac-Man

Not satisfied with being resurrected on Namco's *Museum* CD, *Pac-Man* is rearing his rotund yellow head once again, this time in a new coin-op from veteran VR protagonist, Virtuality.

By sporting VR headsets, up to four players can link up as a sort of Pac-Man family and then try to outwit the pesky ghosts together.

Virtuality's game also includes full 3D audio, meaning players can talk to each other across the link-up.

On the graphics front, Virtuality boasts that it has retained the look and feel of the original smash hit in its new VR game. A tribute to Japanese design, or just a cunning way of updating the framerate which is usually disappointing slow in VR games? The world can decide for itself when *Pac-Man* fever hits the arcades once again.

good with some nice texturing as well as all the originals sound and samples. The ECTS PC demo wasn't running quite as fast as the Saturn version, but it's early days yet.

Sony had it's now customarily huge presence, with a great array of quality titles. However many of the games on show were very familiar and in danger of being labelled boring. *Wipeout 2097* looked stunning, dangerous and drug-induced, and will sell like the proverbial hot bananas. *Destruction Derby 2* looks to have remedied many of the gameplay problems of the original, whilst yet another racer, *F1*, has recently become the big-seller, despite using teams from last season. Naughty Dog's *Crash Bandicoot* (see page 62), drew in the crowds, and *Tekken 2* was never likely to disappoint, despite the 17.5% slower PAL version. Strangely enough, Core's *Tomb Raider* could also be found lurking in Sony's vast kingdom.

Interplay's purchase of Shiny Entertainment has certainly gained it a lot more kudos, but question marks still remain over Shiny's 32bit ability. *MDK* was on show, albeit with Shiny staff on hand to explain away the all too easily found bugs.

Ocean has had a relatively quiet time of late, discounting it's merger with Infogrammes and the loss of its software development head, **Ian Turnbull**, to Eidos. The game industry's reliance on alcohol meant that sponsoring the ECTS bar guaranteed Ocean a huge number of visitors, although how much they all remembered remains to be seen. The clinical white corridors played host to a now complete



Virgin rejected the simplicity of the 'booth' and built a cathedral instead

Tunnel B1, ably supported by in-house efforts *Dreadnought* and *Super EF2000*.

Always the plucky underdog, CodeMasters, celebrating its tenth birthday at ECTS, had a compact but bijou stand. The occasional flashes of brilliance, characteristic of its long history, continued with *Micro Machines 3* looking excellent, the curious *Jonah Lomu Rugby* looking complicated, and the dependable if uninteresting *Pete Sampras Extreme* looking, well, dependable and uninteresting.

The almost total lack of a 64bit presence was worrying in some ways, but irrelevant in others. With such strong 32bit titles on show at the event, it was clear that European gamers will have much to occupy them until next Spring when the N64 is finally due to arrive. One thing is for sure, by this time next year, the twin towers of Sony and Sega may just have another huge company bustling for space on an ever more crowded ECTS skyline.

THE GAME INDUSTRY'S RELIANCE ON ALCOHOL MEANT THAT SPONSORING THE ECTS BAR GUARANTEED OCEAN A HUGE NUMBER OF VISITORS. HOW MUCH THEY REMEMBERED REMAINS TO BE SEEN



Top row from left: *NiGHTs* impressed Saturn owners, *Screamer 2* was also well received and *Soviet Strike* gave EA a break from sports sims.
Bottom row from left: *Tomb Raider* seemed to be everywhere *Turok: Dinosaur Hunter* was the lone N64 contingent and *Wipeout* looked 'dangerous'

Project *Maya* aims to take graphics 'one step beyond'

Still in a pre-alpha stage, Alias/Wavefront's new software suite already looks impressive

To the strains of the Madness hit, 'One Step Beyond', Alias/Wavefront recently showcased a pre-alpha version of its new *Maya* software suite to an audience of mainly broadcast professionals in London. *Maya* is billed as A/W's attempt to take digital visuals into the next generation and was first announced at Siggraph in 1995. While it is not expected to roll out before spring 1997, its current performance, as illustrated in a 45-minute demonstration, is still exceedingly impressive. '*Maya* is the first stage', comments A/W's European Sales Manager, **Mark Pammenter**. 'The idea of "One Step Beyond" is to put lots of clear space between us and the competition.'

Maya's unveiling is the capstone on what has so far been a successful year for the Silicon Graphics-owned company, with both a 50% increase in its user base in the entertainment and industrial sectors, and the establishment of a European Support Centre.

With *Maya*, A/W's stated intention is to take digital content creation into the 21st Century. To that end, *Maya* has been built from the ground up and wrapped tightly around current Silicon Graphics hardware. This, claims the company, allows the software unmatched performance, and given its speedy realtime manipulation at the demonstration of a fully-textured and shaded NURBS model, it's a claim that is hard to refute. Using an Indy 2 Impact, the company also demonstrated realtime inverse kinematics-solving, lip-synching and the ability to let objects 'flow', again in realtime, through a deformation lattice.

MAYA HAS BEEN BUILT FROM THE GROUND UP AND WRAPPED TIGHTLY AROUND CURRENT SILICON GRAPHICS HARDWARE. THIS GIVES THE SOFTWARE UNMATCHED PERFORMANCE

Other features include a user-definable (in length) undo/redo queue which is built into the system architecture, a drag-and-drop animation hierarchy and a customisable tool shelf (a concept ported over from *Power Animator 7.5*) which can also support macros written in *Maya*'s own scripting language, MEL.

Games-industry attendance at the demonstration was minimal, however, partly due to the lack of specific games tools so far inserted into the architecture. 'All we can really say at the moment is that the first phases of *Maya* are due for release at the start of next year,' says Pammenter. 'It will be a continual-release program right the way through. There are certain ongoing developments with specific tool sets and we have a separate games development group in Toronto. The foundation is within *Maya* – the modelling, the animation, the special effects. The things which are specific to the gamers, like the direct translators, are actually plug-ins which sit within *Power Animator* 7.5 and would be very similar within *Maya* as well.



***Maya* boasts a huge range of often user-definable, graphics manipulation features**

'The whole idea is to get the main framework of *Maya* out and then fill the boxes up. We won't be able to deliver the entire package for games, multimedia, TV, film, etc. straight away.'

The company forecasts that the far more games-specific *Power Animator 7.5* will run concurrently with *Maya* for some time and indeed some of *Maya*'s prospective game-orientated toolsets have actually been stripped out and issued for *Power Animator* 7.5, a trend that will continue until *Maya* is complete for gamers.

Maya will be available free of charge to all supported clients, while, for anyone else, the software suite's price should be in line with current products. The end result for the consumer should be improved visuals, particularly ingame, which will be noticeable at first with Sony and Nintendo, both of which have fine-tuned tools associated with A/W product lines.

According to Pammenter, however, one of the key effects is going to be a general increase in workflow and its almost inevitable knock-on effect of reducing game slippage. 'One of the problems in the past was that developers couldn't afford the time. They'd get halfway through a game and someone would say, "Shit, Christmas is coming up fast, get it cut now". *Maya* will help people fast-track more. It will impact on people's delivery times and hopefully they'll deliver when they say they will.'

Edge would like to apologise to Panasonic Wondertainment for publishing an interview with Hiroyuki Sakai regarding its coverage of M2 in issue 37. This article was published prior to final authorisation and the magazine would like to thank Panasonic Wondertainment for its understanding and consideration in this matter.

Are 64bits always better than 32bits? Former Silicon Graphics man George Zachary cuts through the marketing babble and discovers that, as Cole Porter once famously wrote, it ain't necessarily so

Battle of the Bits



George Zachary is a partner at Mohr Davidow Ventures, a venture capital firm working in new technology. Formerly he worked in marketing for Silicon Graphics in California

Bits defined

A bit (short for Binary digIT) is the smallest discrete unit of information available to a computing device. Since all non-esoteric modern computing devices are binary, a bit is usually represented as either a 1 or a 0, meaning either on or off.

The bit is the basic measuring device for information in computers and videogames. It is used to measure the computing power of systems, referring to how many bits the microprocessor or CPU of the system could process at once.

An 8bit system, like the original NES, works with 8bit 'words' and is less powerful than a 16bit system like the Mega Drive or SNES which are both able to process 16bit 'words'.

The colour generation capability of a system is also measured in bits. Colour on a computer screen is made up by combining different intensities of red, green and blue in a pixel. Thus, 8bit colour is 256 colours, 4bit colour is 16 colours, and so on.

In case you hadn't noticed, there is a marketing war going on in the videogame business. Most believe it is a war of game titles - *Virtua Fighter* vs *Tekken* for example. Increasingly however, (and especially since the arrival of the N64) many theorise that it is becoming a war of the 'bits': Nintendo has 64 of them, poor old Sony and Sega only have 32. It would appear then that Nintendo will be the obvious victor. But are things really so clear cut?

The war of the bits is really a war of technology, with bits as an easily digestible word for gamers on the street to use as a gauge of system performance. Since most gamers (hopefully, **Edge** readers are the exception) do not understand the underlying technology and complex benchmark tests, nor want to spend the time to be educated, game marketers use bits as a way to differentiate their products over those of the competition.

This is really no different from other industries. Take the exciting world of performance sports cars. When Chrysler announced the Dodge Viper the rallying cry was: '10 cylinders of performance! It's a V10!' In reality, the fact that the Viper has a V10 engine has relatively little to do with its performance. The fact that the engine has 8.0 litres of displacement and 400 brake horsepower does. However, 'V-10' is a far easier way to inform and impress the average consumer.

The connections between the phrases '64bit processor' and 'V-10 engine' go even deeper though. Both are used to position the products that they power as the leading system in their field. Both are 'engines of work' (to label them correctly). Yet neither describes how frequently the respective systems do their work. Hence, neither describes their real world performance - they both only paint a part of the overall picture.

So, what is the hapless consumer meant to do in the face of such abstract information? In both the case of the computer and the car, one way to understand performance is to take the engine and see how well it works with the system it sits in. Thus, the benchmark of, say, 'polygons per second' for gaming consoles and 'zero to 60mph' for performance cars. Both these benchmarks imply a certain intensity of user experience. But, as any gamer knows, they do not necessarily define the *quality* of the user experience.

As a general rule, though, if we can manipulate much bigger words (bits) in smaller amounts of time (clock frequency), we should be able to do more work. In the case of gaming, more work means more processing power for computing more complex character and object behaviours. More work also means much quicker arithmetic, so we can calculate where a polygon should be on screen more quickly and put more of them on the screen in a given time period. This means better graphics.

However, for this to translate into higher performance, the whole system has to be tuned to work as a whole. A 32bit CPU with 8bit data paths to a 16bit graphics engine would be a clunky architecture - it would be like connecting a V-8 engine to a go-kart transmission on an estate car's chassis. The Atari Jaguar, for example, was described in adverts as a 64bit machine, and it did indeed include a 64bit-wide bus. However, it also included 16 and 32bit chips, so it could never really be classed as truly 64bit.

More bits are better as long as the whole system is tuned and designed in a smart architecture to use them most effectively. Even more importantly, how well the game software takes advantage of them decides the success of that system.

Bits also describe a system's ability to show colours - the more bits, the more colours and the better the visual experience for the player. However, this perceived benefit decays when we realise that human visual perception is saturated at 36 bits. After this point, the human eye can't see any difference. The situation we now have is that current systems can produce more colours than we could ever see or display on a television (we wouldn't be able to detect the subtleties between colour changes even if there were enough pixels on a TV screen).

So, as a rule, it's best not to put your unquestioning trust in 'bits'. Yes, generally speaking, the more bits the better. But it's how the whole system hangs together that matters. And then, perhaps even more importantly, what a programmer decides to do with that system.





The Saturn has 'three 32bit processors' (board, top), but this doesn't make it three times more powerful than Sony's less well-endowed rival (PS board, above)

Meridian 59

Site:	Meridian 59
Address:	http://meridian.3do.com/meridian
Format:	Online game
Origin:	US

The grand old daddy of online gaming, the MUD, has dragged itself into the 90s with *Meridian 59*

Internet and multiplayer gaming began in the late 70s with Richard Bartle and Roy Trubshaw's adaptation of a text adventure doing the rounds at the time called *Dungeon*. Using the early form of the Internet, Bartle and Trubshaw were able to let any number of users explore the same world at the same time, meeting or killing each other as they progressed through the game performing missions, killing orcs and such like. They named their revolutionary game MUD, multi-user dungeon. MUD and its young pretenders have become an Internet phenomenon over the last 20 years, albeit a niche one. There are currently over 700 different MUDs, with an estimated 5,000 global participants.

Free, unlimited multiplayer gaming ought to be bigger than MUDs are, but the main difficulty is the typically clunky text-only output, and the command driven typed input. Surprisingly enough, typing and reading aren't every gamer's idea of a good time. If only someone would design a MUD with a decent graphical interface (perhaps displaying locations in a 3D window), controlled using a mouse, and simple to set-up, rather than the confusing Telnet system usually employed. In fact, if it could look and play like *Quake* then all the better. Enter 3DO's ground-breaking new game, *Meridian 59*.

Meridian is a MUD adventure in the most traditional sense: elves, wizards, leather, heaving fantasy breasts, etc. However, thanks to the lag inherent in the Internet, it's forgone *Quake*-style fast, beautiful 3D action in favour of, to put it politely, a slightly more 'retro' 3D look. It even manages to make *Doom* look advanced. But comparing solely the look of *Meridian 59* to that of *Doom* is akin to pointing out that the cover of the Bible isn't as colourful as Jeffrey Archer's new tome.

Meridian 59 is an Internet-only multiplayer game, and has been designed to enable a theoretically unlimited number of adventurers to gang up, fight, explore, undertake set quests, or for the less adventurous, just sit around chatting. And such is the devotion of the community of 'inhabitants' that wander around *Meridian 59*'s world, some strange scenarios have occured. For example, virtual weddings have taken place with a 'congregation' of hundreds packed into the same church.

And, of course, there are those morally redundant players that run around trying to hack people to bits – they get a price on their head and once in a while get tracked down by anxious neighbourhood watch parties.

But such midnight oil burning costs for those living in the UK. For a start, you'll get stung for £40 just for the client software, which, of course, is useless unless you are connected to the Internet. Add your service provider's charges of about £10 a month in here. The £40 client software includes one month of free gaming time, but once you're hooked, expect to pay around £6.50 per month from then on, which provides unlimited game time during that 30-day period.

Meridian 59 is also choosy about its Internet connection. *Win '95* only, it requires a 32-bit winsock, so CompuServe and AOL are currently out of the question. It doesn't work through firewalls, either, so saving money by playing at the office will probably not be a feasible option...

More Info...

Freebies

Text-only MUDs are usually free to play (apart from the Internet connection of course) but require a Telnet client to work. You can download a MUD-specific one from http://www.chaco.com/pueblo/ for the PC, and ftp://rudolf.ethz.ch/pub/mud for the Mac.

To get an up-to-date address list of MUDs, have a look at http://www.interplay.com/mudlist, or search for MUDs on Yahoo!

To find out a bit more information about *Meridian 59*, go to http://meridian.3do.com/meridian/.





It may not look like a ground-breaking game – but 3DO's *Meridian 59* online adventure is oddly captivating. The simple graphics keep it usable even when the Net is busy



IT'S LIFE, BUT NOT AS WE KNOW IT... EDGE MEETS THE MEN CREATING ALTERNATIVE WORLDS WHERE ANYTHING CAN HAPPEN

Photography: Michael Donald



An audience with William Latham

The arcane, specialised world of computer games, you might think, is no place for a sensitive artist. But whatever you do, don't say that to William Latham. Latham, of course, has forged an enviable reputation as probably the world's top computer artist – having emerged from the Royal College of Art, he spent several years at IBM, taking full advantage of Big Blue's number-crunching power to perfect a set of genetic algorithms. After leaving IBM, he teamed up with programmer Mark Atkinson, and the pair formed a company called Computer Artworks. Computer Artworks' output includes sleeve artwork and even a video for The Shamen, more sleeve artwork for Robert Miles and, of course, the blissfully gorgeous screensaver *Organic Art*.

Computer Artworks has just moved from London's Soho to bigger premises in Victoria, in preparation for its impending metamorphosis into a fully fledged games developer. BMG commissioned Computer Artworks to create a prototype version of an artificial life game, codenamed *Virtual World*. While Latham and Atkinson wait for this project to receive the green light, they have been busying themselves with a range of *Organic Art* clothing developed jointly with futuristic fashion designer Daniel Poole, a *DirectX* version of *Organic Art* developed specially for Microsoft and a 70mm *Organic Art* animation sequence for movie sound hardware company DTS which, rather like a 21st-century version of the Pearl & Dean sequence, will soon be reaching a cinema near you. Latham and Atkinson talk **Edge** through the philosophy behind the world's newest and hippest games developer...

Edge It's always been your ambition to become a games developer. How close are you to realising that aim? And what will your first game be like?

William Latham We're now working on an artificial life game prototype for BMG. Whereas *Organic Art* was quite claustrophobic, the new project will be more spatial.

Mark Atkinson The AL gameplay will be on the same level as *Creatures*, but in a 3D environment where things could be flexible, not restricted. With artificial life, you must put the gameplay first. We came up with the game idea first. Computer AI is very stagnant – we've got to the point where AI games are at a certain level of complexity. Take, for example, *Command and Conquer*. You can beat it every time because you can always find one thing the AI can't cope with. Our game will be adaptive, so that it changes somehow to cope with what you did last time.

Edge How will this work?

MA The other problem with computer AI is that it plays like a computer. When you play against other humans, they make mistakes, and there's no reason why computer AI shouldn't act like this. We

Continued next page

interview

Continued

want to put hidden characteristics into the game so that there's a lot of stuff going on under the surface and you get an intuitive feel of how the whole thing works. So that there's a personality behind it. One of the enjoyable things about games is the learning curve: they should be rich in that sort of thing.

Edge In what ways will *Virtual World* be different to *Creatures*?

MA *Creatures* is a great piece of technology – it really has been done properly – but what remains to be seen is, have they created a great game?

WL People have an imagination of what AL is, but the stuff we deliver will be surreal in the most extreme sense. AI will work if you take the technology and the look together.

MA We're determined that the whole thing should be gameplay-oriented first, but we can bring a great graphical style to it. The AL genre has the same potential pitfalls as early CD-ROM games, which had lots of streaming video in them simply because it was possible to do that. We're not going to fall into that trap.

WL Although the game is codenamed *Virtual World*, that's a very literal title. We probably won't use it for the release, because 'virtual' is such a naff word.

MA It will have a convincing 3D environment like a virtual world. The artwork won't be photo-realistic – virtual worlds are about creating convincing universes which are not like anything you've seen but behave in a consistent way.

WL It'll subvert Darwinian evolution with a Freudian sub-plot. Mark wants more depth, and I want more breeding.

MA One fundamental AL thing is that it isn't life as it is, but life as it could be. The idea is to create an alternative system and work out what the fundamental things are, and what can be varied.

WL It's using the computer to do what it does best: generative stuff, rather than replays.

MA No one uses the computer as a medium. For example, there's the idea of emergent complexity, where you take one thing and put it with 100 others, and get flocking behaviour. It's the same with software: if you can keep it under control, you get a qualitative leap to a proper system.

Edge With just five people, Computer Artworks is a pretty small outfit. Do you really have the resources to generate a genre-busting game?





WL It makes me laugh when people talk about 'licensing content'. We just generate our products from scratch.

MA If you can write the software to generate an environment, you don't need 20 people working with SGIs.

WL People will say that we haven't produced any computer games, but the bitmap wave has crashed and 3D is beginning to form. We're ideally positioned to ride the 3D wave, by taking stuff from the research world and the 3D world and applying it. And like with *Organic Art*, we'll take the game into wider areas like fashion. We want to do something like David Lynch did to Hollywood, to make stuff that's massmarket but also original.

MA The timing of *Direct3D* and all the accelerator cards is perfect for us. In 18 months, that market will be mature. Everyone will have gaming systems which do things that current workstations can't do.

Edge What are the day-to-day practicalities of becoming a games developer like?

MA The whole industry needs a kick up the arse. It's so stagnant – small companies are bought by big ones which have no judgement and just seem to stick pins into genres. This will diminish the overall size of the industry – people will just go back to getting videos out or going down the pub. It's an asset-stripping marketplace that produces title after title with no originality. Any other industry diverts 10 per cent of its profits to research and development, and isn't afraid to take risks. The software and games industry in particular does not have that attitude. Although, for example, the Bullfrogs of this world are still producing good titles, one game in 10 should be a risk, even if it doesn't work.

WL There are so many games developers out there who are being told to make shit games. Because we're independent, we can do something that we think is good and then find someone to publish it. We tend to take on only one person at a time – we're very careful about who we take on. We need to expand our infrastructure, but we'll do that gradually. We're looking out for programmers who are into what we're doing.

MA We do have a high profile as a developer – people know stuff as Computer Artworks products. I think it's important for developers to have an identity.

Edge What's it like dealing with games publishers?

WL We're looking for a publisher that can do something for us. Computer Artworks has to make key moves, and get the right publisher.

Edge So what other projects do you have on the go at the moment?

WL There's the clothes range with Daniel Poole. There'll probably be an early range ready for this Christmas, consisting of long and short-sleeved T-shirts and possibly even some *Organic Art*

Continued next page



"VIRTUAL WORLDS ARE ABOUT CREATING CONVINCING UNIVERSES WHICH AREN'T LIKE ANYTHING YOU'VE SEEN BUT BEHAVE IN A CONSISTENT WAY. IT'S LIFE AS IT COULD BE"

Continued

Hawaiian shirts. Then there'll be a full fashion range for the spring catalogue, including Hawaiian shirts and satchels. We've let *Organic Art* design the elements for the shirts, and then taken these into *Photoshop*. Josh, our designer, has been working with their designers; they've been coming down here for creative sessions.

MA It's a very different way in which to work: the design tool has generated lots of stuff, and we've been deciding which of that stuff we like. Ultimately, we'd like to connect our computers to the print machine, so that you'd get a totally unique design each time, or you'd get one pair of shirts to each design.

WL Some of the designs look a bit like Laura Ashley on acid, or William Morris on speed, but it's also surprising how conservative some of the designs look.

MA They're the sort of things that make you do a double-take. You look at them once and think they're just flowery shirts, then look at them again and notice they're actually *Organic Art* patterns. We'll probably use our Web site, by putting a number of designs up on it and inviting people to vote for what they like. If a design gets, say, more than 20 votes, it'll get printed.

WL That's the nice thing about the Web: you can use it to sell Hawaiian shirts to Hawaii. Through Daniel Poole, we're tying back into rave culture, but with stuff that fits into the Hawaiian shirt genre, whereas techno culture stuff tends to be angular and sharp.

Edge How did the venture with Daniel Poole start?

WL There are two stories about that. The true one is that Josh went to the club The End, liked the Daniel Poole space cadet costumes the staff there wear, went into Daniel's shop and got them down here. The other story, which was printed in a national newspaper, says that Richard from The Shamen introduced us to Daniel. This could have happened, but it didn't!

Edge How did you get involved in doing a *DirectX* version of *Organic Art* for Microsoft?

WL They tracked us down and asked us to do a *DirectX* version for them. There have been around 150,000 downloads from their Web site.

MA We like working with Americans, because they just say: 'This is cool. Can you do this? Yes? How much do you want? OK, here you are.' It's odd, because the first *Organic Art* wasn't the subject of much discussion on the Web, but this one was, because of *DirectX* driver problems. It was great for us, though, because with *Direct3D* coming out, a lot of developers have had to start again from scratch. But we built *Organic Art* on top of RenderMorphics' *Reality Lab*, which is almost identical to *Direct3D*. For the Daniel Poole stuff, we wrote all sorts of extensions to *Organic Art Pro*. The original *Organic Art* technology was out of control, but now that we've written it as a development system, its output can be controlled.



"THERE ARE SO MANY DEVELOPERS OUT THERE WHO ARE BEING TOLD TO MAKE SHIT GAMES. BECAUSE WE'RE INDEPENDENT, WE CAN DO SOMETHING WE THINK IS GOOD"

Edge What about this animated sequence for cinemas you're working on?

MA For this, we interfaced our *Organic Art* system to *3D Studio Max*. It's a sort of Pearl & Dean-type thing with 3D sound...

WL It's an organic sequence that finally ends up as the DTS logo. It's got about one million polygons per frame at 70mm cinema film resolution – each frame took up about 38Mb. It was all done on PCs. It's an organic evolution sequence, except that it evolves into a logo at the end. Kick Productions in Soho did the music to go with it. It's like a trip, except without taking drugs, because I don't believe in taking drugs.

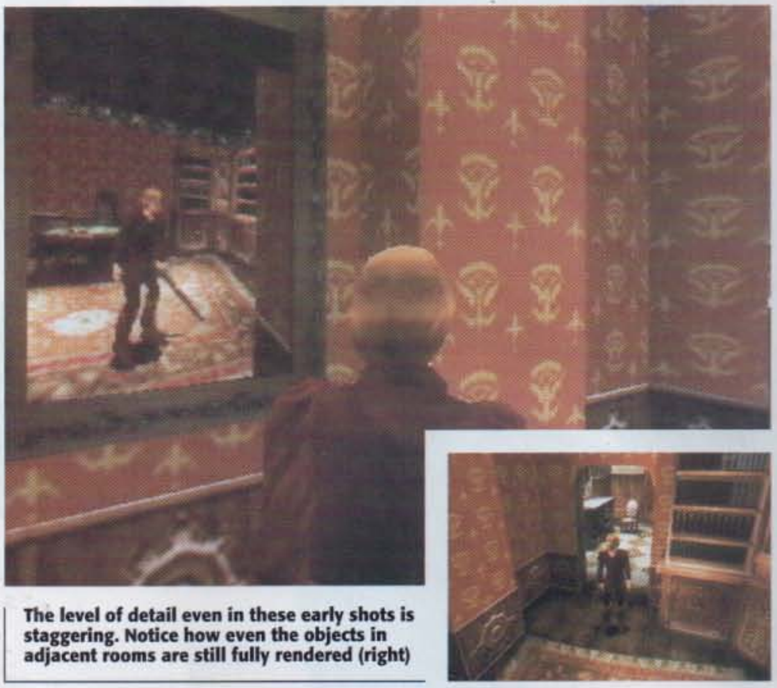
Edge So, what other projects do you have waiting in the wings?

MA We will do *Organic Art 2*, although it'll probably take us twice as long as it ought to. We'll also produce another game as a follow-on to *Virtual World*, which uses much of the same technology, but moves one level further up. We didn't want to end up biting off too much, so we're doing something which is ambitious, but not too ambitious.

D2

Dの食卓2

The rumours behind M2's imminent arrival in Japan are fuelled by the unveiling of one of the system's key titles. Edge reveals the first pictures to back up the phenomenal specs



The level of detail even in these early shots is staggering. Notice how even the objects in adjacent rooms are still fully rendered (right)

Warp's follow-up to its enigmatic, but shortlived, FMV adventure, *The D*, is a title of great importance in two respects. First, it will show whether Warp's endearingly refreshing approach to games design was merely a flash in the pan, a youthful flourish intended to get them noticed, or whether Kenji Eno's outfit have the talent

Kenji Eno's outfit has the talent to outlive its status as enfant terribles of the Japanese games industry

to outlive their current status as 'enfant terribles' of the Japanese games industry. Secondly, and perhaps more significantly, *D2* is the first M2 title to be revealed to the Japanese gaming public.

That Warp have released screenshots of the game now, weeks ahead of Matsushita's intended official unveiling of M2 in November is odd, to say the least. Warp are practically the only non-coin-op thirdparty developer announced for the 3DO-developed format and it was expected that Matsushita's own stable of titles would be the first to be seen.

Given that the majority of M2's early titles will be action/arcade games – developed both internally at Matsushita and by the likes of Konami and Capcom who are using M2 as an arcade board – it is all the more surprising that Warp's more considered and decidedly less flashy title is the first to make an appearance.

The story of *D no Shokutaku 2*, to give the game its full title, is a continuation of the first *D* game with the player taking the role of Laura's son in a highly convoluted scenario outlined in the introductory CGI movie (seen through M2's high-quality MPEG playback). Laura is pregnant and on a flight to Romania when the plane hits a patch of turbulence causing Laura's lump to disappear and the plane to crash. The baby has been spirited back to a castle in medieval Transylvania by the Devil, to be the child of a widowed Duke who has sold his soul to said demon. This baby then grows into manhood and fights the devil to save his father. Perhaps it's best just to savour the visuals...





M2's built-in MPEG playback will make high quality, rendered cut scenes possible



If Warp can marry the extraordinary level of detail in these shots with a fast game engine then *D2* should prove to be a stunning M2 debut

Format:	M2
Publisher:	Panasonic
Developer:	Warp
Release:	1997
Origin:	Japan





Currently, the team still has much work to implement in *D2* but already there are impressive sections in the game such as this statue surrounded by realistic foliage. The game's wiry protagonist could do with a bit of work, though

With a plot that serves up mystery and suspense you could be forgiven for thinking this was a cerebral affair





The system's fogging effects (right) provide great atmosphere, while the perspective-correct textures (above) will serve M2 well in comparisons with the PlayStation

All the action in *D2* takes place in and around a castle and the play perspective looks to be similar to that of Capcom's *Resident Evil*. However, instead of cutting to prerendered static shots of individual locations, the player and the game camera move in complete 3D space (as in *Mario 64*) with control handled by M2's analogue controller. With a plot that serves up mystery and suspense in equal measure, you could be fooled into thinking that *D2* was a wholly cerebral affair but the sword-wielding hero does get into a fair number of duels both inside the vast expanses of the castle and in its surrounding gardens.

Graphically, *D2* looks highly detailed and imaginative giving an indication of M2's texture-mapping and light-handling capabilities. It has a wide variety of realistic textures which, for example, make it it possible to identify different types of wood used in furniture in the castle. M2's light-handling also looks extremely advanced with shadows changing according to the time of day, fog reducing visibility early in the



An rendered 747 from the game's MPEG intro

Continued





Expect to play around with the game's camera to stunning effect. Multiple lightsources should create an unprecedented level of realism

morning and darkness obscuring things at night. The presence of a character in a room will also affect light and reflections in a location, and mirror effects look truly stunning, incorporating stunning levels of detail. More than mere cosmetic effect, the light, or more specifically the time of day, affects the way the game plays, too. Certain events will only occur and certain actions will only be possible if the player is in the right place at the right time.

Judging from the screenshots issued by Warp, *D2* would seem to have the same dark, dramatic and intense feel that gave its predecessor such a unique atmosphere, but with the immeasurable boost of realtime environments to explore, instead of relying solely on prerendered clips spooled together. A reportedly smooth, intelligent game camera that shifts in response to player movement should also, hopefully, give *D2* an atmospheric, cinematic style.

As a showcase of M2's abilities, this certainly looks like it has the potential to eclipse even the Nintendo 64. But polygons aside, what isn't known is just how significant a role *D no Shokutaku 2* will be playing in the impending M2 assault. Issue 40 will attempt to provide an answer.

What isn't known is just how significant a role *D No Shokutaku* will be playing in the M2 assault







Many of the puzzles in *D2* are similar to those in the original game with objects requiring manipulation, such as this clock. Also see how the foreground textures realistically blur (right) when juxtaposed against complex backgrounds







Bruce MacMillan (left), *FIFA 97*'s producer, takes Edge through motion capture, the new AI and the complex sound mixing techniques



ea Canada

Edge heads to Vancouver for the lowdown on a team channelling its resources into developing the world's best sport sims. But with competition growing, how long can EA Canada stay ahead of the pack?

With the bland predictability that always characterises Electronic Arts' Christmas schedules, shelves this Yuletide will be buckling under the likes of *FIFA 97*, *NHL 97*, *NBA 97* and *Madden*, yes, *97*.

Each title enjoys the weight of EA's formidable marketing strength, brand name and seriously expensive licensing deals. And yet, surprisingly, this set of digitised sports games doesn't share a consistent look and feel or a common technological background at all, despite the fact that they are all being developed at the EA Sports studios in mountainous Vancouver. Compare the graphics across the four titles and you could be mistaken for thinking that two years of development separates the splendour of *NHL 97* and the comparatively Stone Age *Madden 97*, which still – perhaps you'd better sit down to hear this – uses SPRITES to display the players!

The simply stunning-looking *NHL 97* is the most successful demonstration of motion capture to date. As **Ken Sayler**, producer of *NHL*, is at pains to point out: 'We got movie stuntmen in to do the motion-captured falls, so that they could really hit the ground hard. We even got them to skate into solid objects, or to swipe at each other with their sticks to make the violence realistic. One guy offered to do a triple somersault and land on his face. We accepted.'

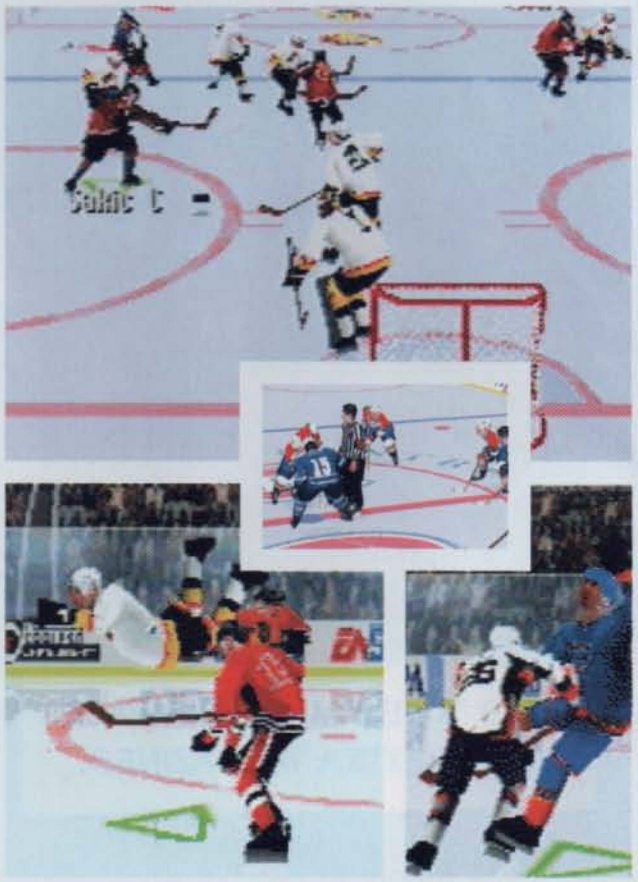
This data has been put to good use, moving polygon players around the rink at tremendous speed. The EA Virtual





***FIFA 97* certainly looks much better than last year's effort. These stills are from the PC**

Format:	PlayStation, PC
Publisher:	Electronic Arts
Developer:	EA Studios
Release:	Various
Origin:	Canada



***NHL 97* for the PC and Playstation was a good-looking title – and a big step forward from Park Place's original Mega Drive classics**



FIFA 97 includes the kind of perspectives you show someone who's never seen a Playstation before. Don't try to play the game like this

The EA Virtual Stadium technology is even capable of displaying players' names on the backs of their shirts



Stadium technology (which the *NHL* team partially rewrote to give them the edge) is even capable of displaying players' names on the backs of their shirts (which crumple and crease realistically, too) and of superimposing photographs of actual players' faces onto the head polygons. These photos even blink, become bloodied, smile when the team is doing well and frown when they get substituted.

Edge asked Ken why *NHL* looks so advanced when the *NBA* team told us that it wasn't possible to put photographs onto polygons, the *FIFA* team said that they weren't able to put player names on the backs of shirts, and the *Madden* team claimed that they couldn't use polygons because 22 players were running around at one time. His response: 'We're very competitive [with the rest of EA Sports]. My team keep wanting to add new features, but I have to say no. We've got to get the game finished.'



The most impressive technical aspect in the polygon motion-captured titles is a new technique known as 'motion blending'. Until now, motion-captured games have taken one of two routes. If a player is running and you want to kick the ball, the animation has either snapped unnaturally into the new animation, or the running movement finishes before the kicking motion starts, resulting a distinct time lag. Motion blending looks at the two movements and creates four or five intermediate frames, mixing from one animation to the other in a fraction of a second. The result is instantly noticeable if you look out for it, but invisible during play.

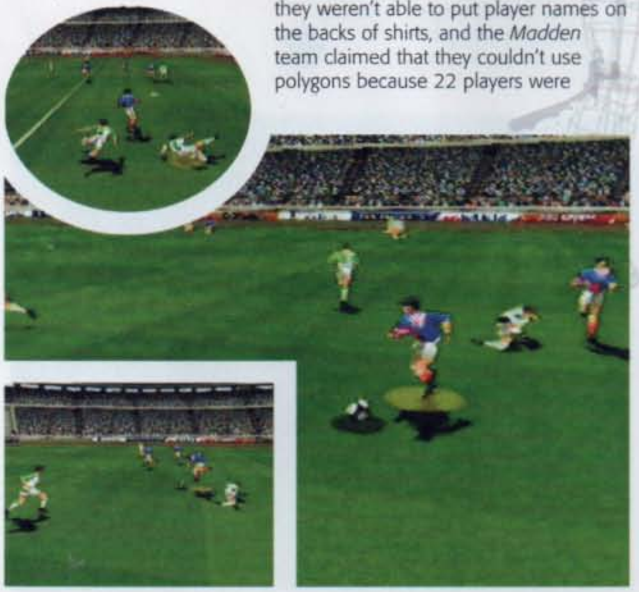
In-game commentary has been overhauled this year. Most impressive is *FIFA*'s new soundtrack, with an introduction by everyone's favourite sports commentator, Des Lynham. Accompanying the ever-present John Motson is Scottish dry wit Andy Gray. Rather than just mention the state of play ('Cantona to Giggs', for instance), Motty and Andy actually have conversations, discussing the state of play and its merits. It's still a little rough around the edges at the moment, but the finished thing is likely to sound much more like a televised broadcast.

FIFA has had its AI souped up too. Last year's version still used the 16bit AI developed for the Mega Drive and SNES, whereas this year's AI is 32bit and written from scratch by Yorkshire-born **Mark Gipson**.

'You used to be able to swerve a shot from midway into your opponent's half and score every time,' reveals Mark. 'Okay, that shouldn't have happened, and it won't any more. Like real football, if you're one-on-one with the goalie, you've got a much better chance of scoring than if you take a potshot from the halfway line.

'A computer player decides whether to pass, tackle or shoot when he's got the ball, depending upon the skill of player charging towards him. If he passes, he'll look at the benefits of passing to each player. But, of course, he can't see behind himself, and he has to guess where those team-mates are."

Whereas *NHL 97* already looks superb, the latest versions of *FIFA*, *NBA* and *Madden* were too incomplete for **Edge** to judge how good they'll be. *NHL*, *NBA* and *Madden* are due out in October. Expect *FIFA 97* the end of November.



These stills are from the first playable version of EA's *J-League* for the N64. It may look like *FIFA 97*, but the camera spins are far smoother

Hot seat...

After looking at their goods, **Edge** demanded that the upper echelons of EA Canada answer a few questions.

Edge: How many people does EAC employ?
Paul Lee (general manager): Currently 310. There were only 50 when EA Sports – formerly Distinctive Software, programming sports games for Accolade – was bought by Electronic Arts.
Edge: How many work on individual titles?
Paul Lee: We've got about 100 people on *FIFA 97*, which is the biggest team. There are less than ten in most teams when they start work, building towards 70 during the final testing phase.
Edge: *FIFA 96* wasn't tremendously well received by the computing press, and yet it sold incredibly well. Was the programming team congratulated on making something so successful, or criticised for making a far from perfect game?
Bruce McMillan (producer, *FIFA*): We had lots of good reviews. Each version got high marks. We knew we could do better, but we think it was a good game. I think if you look back at any old game you can find plenty of criticisms.
Edge: So, apart from the obvious technological advances, what have you changed about *FIFA*?
Bruce McMillan: I think that with *FIFA 96* we had a good gameplay experience but not a great one. It might shock you to hear me say this, but I love playing *Sensible Soccer*. *Sensible* has great gameplay – easy to pick up and difficult to master. But our greatest competitor is ourselves. *FIFA 96* sold very well.





PGA and *Madden 97* on the Playstation. Sadly, both these games already look outdated

Fragile Allegiance

Bullfrog has long been considered the master of the British strategy game, but _Gremlin_ is looking to usurp it with a complex space-age version of _Civ_. Can it survive in this 3D obsessed market?









The player uses a series of menu screens to buy weapons, spaceships and new buildings

Given the pathological obsession most game developers have with 3D engines at the moment, it is good to know there is still an endangered bunch who are willing to experiment with the 2D strategy genre.

Fragile Allegiance can most snappily be described as a *Sim City* meets '*Civ* in space' kind of game with a remarkably familiar storyline. It is the future and Earth is inevitably low on natural resources. Consequently, a huge pan-global company called Tetra Corp is offering ordinary folk the chance to become asteroid miners. All they have to do is find a suitable asteroid belt, set up a base and start mining. As simple as that.

Of course, the player takes on the role of such a miner. With limited financial assistance from Tetra Corp, players have to set up an asteroid HQ with various buildings, then start finding some valuable minerals. To make things more difficult, there are six alien races in the vicinity, all with their own racial characteristics and all keen to mine the same area. As in *Civ*, the player can either make treaties with them and live in peace, or he can spend his cash on missiles to blow them all up.

Unlike *Civ*, *Fragile Allegiance* allows the player to set the aggression level of alien races before the game. It's also possible to delegate unwanted tasks to a computer-controlled colony manager. In this way you can easily define the type of game you want to play: either in-depth mining sim or out-and-out war game.

The obligatory multiplayer option has been included which will allow four players to mine the same asteroid belt over a LAN. Interestingly, they'll all be able to use an in-game Email system so that two or more players can get together to form fragile allegiances of their own against unwary mates.

Although the landscapes look rather barren at the moment and Edge has not had a chance to gauge the alien AI, the game does look rather interesting and complex. There appears to be a lot for the player to do and buy (including an immense array of missiles, spacecraft and spy satellites) and the graphics are neat if not mind-blowingly impressive. It will no doubt be a welcome release for those who find blowing evil creatures apart in *Quake* somewhat intellectually unstimulating. **E**





The game will no doubt draw many comparisons with Bullfrog's own recent space strategy title, _Gene Wars_. There are definite visual similarities

The player can either make treaties with aliens or spend his cash on missiles to blow them all up



In _Fragile Allegiance_ the player can buy various spacecraft which are then deployed to search for new asteroids. Or for aliens to blow up

Format:	PC CD ROM
Publisher:	Gremlin
Developer:	In house
Release:	Winter '96
Origin:	Sheffield, UK

Disruptor

Quake may have re-energised the PC market but console developers are still paying homage to its forefather. Universal Interactive Studios tries to buck up a stale genre with a smart graphic engine and some new ideas







***Disruptor* adds at least two reasonably new ingredients to the first-person shoot 'em up gene pool: super powers and undulating floors**



It is possible to take your enemy's weapons and add them to your own deadly arsenal

Format:	PlayStation
Publisher:	Interplay
Developer:	UIS/Insomniac Games
Release:	Late 96
Origin:	US

With *Disruptor*, as with all post-*Doom* 3D shooters, it's not so much what it does but how it does it. It's a foregone conclusion that there will be multiple levels of increasing complexity, hidden areas, switches, doors, a small selection of vicious foes and an arsenal of satisfying weapons – it does indeed have all these features and moves swiftly. Some of the polygons 'fold' quite a bit in the version **Edge** played, but in general the quality of the graphics and engine are high. In addition, there are a couple of twists – undulating levels which break from the conventional, building block designs and superpowers for your character.

The superpowers draw power from their energy meter, separate to your health meter. The powers – Drain, Heal, Blast, Shock and Shield – are all fairly self-explanatory and there are pick-ups to boost the energy they use up. Ultimately though, these are alternative weapons rather than a major gameplay innovation.

Level designs seemingly alternate between standard ones of the ramps, rooms and lifts variety and slightly more adventurous ones that dish up craters and hills. All the levels, however, are still rigidly linear in their layout with rooms stacked on top of rooms and none of the open 3D architecture that *Quake* has introduced. Enemies range from floating balls which home in on you and sprout spikes, to Arnie-style Terminator robots.

As in *Doom*, new enemies have their own weapons, but here those weapons can be added to your armoury once you've killed the owner. The basic machine guns and plasma rifles of early levels give way to more sophisticated weapons like the Lock-on Cannon which locks onto a target and launches a spiky homing mine. There are also two powerful one-shot weapons, the Zodiac – which emits a blast wave – and the Plasma Lance – a constant stream of glowing pink plasma that takes out whatever you come across.

There's just no getting away from the fact that *Disruptor* is another *Doom* clone on a machine that already boasts a fine version of the id opus. No matter what innovations may be introduced, no matter how many interesting and attractive levels are on offer, *Disruptor* really has to pass only one simple test – namely, is it as good as the PlayStation version of Doom. The answer should become clear in **E**40.



There's a large selection of interesting weapons including a plasma gun and lock-on missiles



As attractive as the levels are in *Disruptor*, and as nasty as the baddies may be, can the PlayStation market support yet another *Doom* clone: even one with a few new gameplay twists?



Crimewave

Eidos Interactive Studios combines racing game, shoot 'em up, future distopia yarn and totally free playing areas in its latest Saturn title, a sci-fi vigilante action game







In *Crimewave* there is a lot of innocent traffic to smash into or simply blow up with missiles. It's great fun but unfortunately you get penalised for it. Perhaps Eidos will reconsider, though

Attempts to combine the racing game with the shoot 'em up litter videogaming history, but apart from *Wipeout*, things have been quiet recently. *Crimewave* may just reanimate interest in the genre.

The story will sound a tad familiar. It's the future and crime is rife in the sprawling metropolis of Mekeo (the designers must have spent literally seconds coming up with that scenario). Law enforcement has been privatised so now any fool can jump in his car and hunt down baddies. Which is exactly what the player has to do.



Visually, *Crimewave* seems rather at odds with most current 32bit titles. The game uses an isometric, top-down view as well as dozens of different prerendered vehicles and some adequately texture-mapped urban landscapes to create a *Micro Machines* meets *Syndicate Wars* look. A welcome break from first-person 3D.

Despite the familiar plot, gameplay also looks enticingly different. Players can drive where they like in each of the game's eight locations (there are no set 'circuits'), and they have to watch out for rival vigilantes as well as the baddies, so there is a variety of targets.

Eidos also promises a huge list of vehicle weapons which can be upgraded on completion of set missions, plus that old chestnut, truly advanced AI. It all sounds quite promising – just as long as the slight glitches and occasional slowdowns in the demo version **Edge** saw are ironed out.

Format:	Saturn
Publisher:	Eidos
Developer:	In-house
Release:	November
Origin:	UK





The city of Mekeo has eight different, themed zones, including shopping mall, business, industrial and suburb. Each features differing background scenery and road sizes (the latter ranging from single lane dust tracks to motorways)

Toshinden Three

The beat 'em up has progressed greatly since *Toshinden* First appeared on the PlayStation. Now, Tamsoft has a lot to do to prove it is still a contender. *Toshinden 3* looks like a promising statement of intent



Takara is currently tight-lipped about the latest *Toshinden* sequel, so little is known about the new characters, moves and locations





The fighters now seem a lot smoother, with much more definition and detail

The *Toshinden* series has been widely viewed so far as a kind of poor man's 32bit benchmark: not quite as stunning as the *Tekkens* and the *Virtua Fighters* of this world, but still able to show off hardware capabilities.

This comparatively lowly position may change with the latest incarnation of the game, which boasts improved visuals and more intricate character design. The fighters now seem a lot smoother, with much more definition and detail, and are therefore more in line with what Namco and Sega have been producing lately.

In terms of gameplay, Takara is not giving anything away at the moment, but it looks as though the arenas in *Toshinden 3* have been made a little smaller, possibly to ensure that fights are more intense.

The real test, perhaps, will be in how the game utilises new beat 'em up innovations. If Tamsoft can use some of the ideas seen in *VF 3*, the company could leap-frog its console rivals and steal some much-deserved kudos for the *Toshinden* fraternity.



Some rather outlandish lighting effects add to *Toshinden 3*'s mystical atmosphere

Format:	PlayStation
Publisher:	Takara
Developer:	Tamsoft
Release:	TBA
Origin:	Japan



***Toshinden 3* looks as though it boasts the same dynamic, pro-active camera that made its predecessors stand out. It also has improved character design and some detailed texturing. Hopefully, the 'uncomfortable and uninviting' gameplay which marred the previous *Toshinden* titles will have been remedied as well**

Dracula X





***Castlevania* rarely looked good in static shots but it plays well**

Format:	PlayStation
Publisher:	Konami
Developer:	In-house
Release:	December
Origin:	Japan

Konami's long-awaited creepy platformer, finally gets a crack of the whip. But will this 2D classic hold its own against 3D PlayStation attachés such as *Crash Bandicoot*?

Castlevania – a series of platform games developed by Konami since the late eighties (and known as is known as *Dracula* in Japan) – may have continued to hold a place in the hearts of diehard platform fans, but it's taken Konami a long time to get around to marking its haunting, sombre classic with the 32bit stamp.

Originally a series that achieved widespread popularity on the 8bit NES and then later on the Game Boy and SNES (it appeared on the SFC way back in late 1991 and it still one of the seminal platformers for that system), *Castlevania* for the PlayStation bears more than a passing resemblance to the solid 1993 PC Engine version (**E**3). No details are available at present although it's known that Konami plans a more open-plan adventure this time with multiple routes and more stages.





Expect to see the same whip-based style of combat (above) and some excellent lighting effects (right)

Speed King

A futuristic racing simulation might seem ideal for console conversion but in the post *Wipeout* era players crave more than just mindblowing speed





Set in the fictional Japanese city of Neo-Kobe (the same setting for *Snatcher*, in fact) *Speed King* should at least *fly* on the PlayStation

Format:	PlayStation
Publisher:	Konami
Developer:	In-house
Release:	TBA
Origin:	Japan

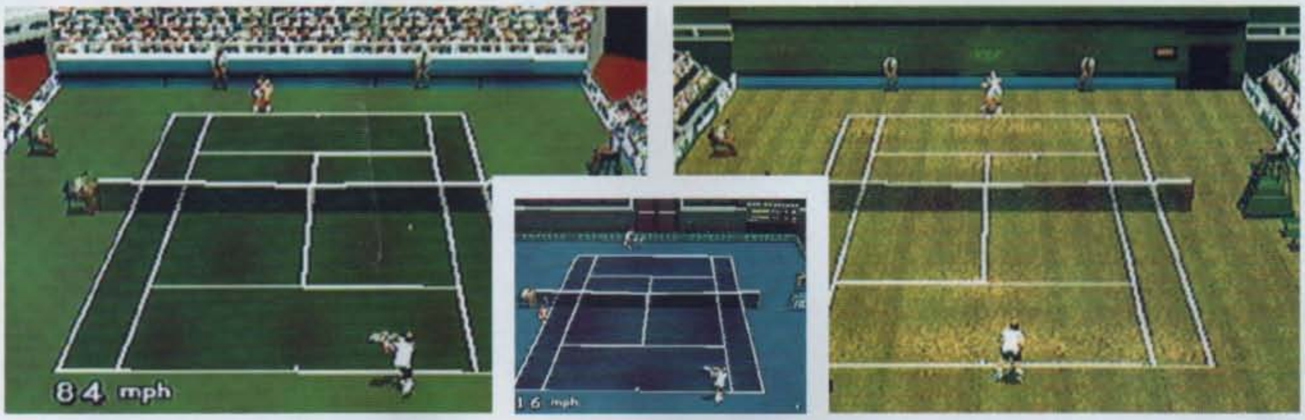
The development of the arcade version of *Speed King* was such a troubled, drawn-out process that by the time it hit arcades, it failed to impress – especially with an enclosed reactive cabinet costing around $100,000. So Konami is hoping it will have more success with the home version – which would have seemed a natural project a year or so ago. Now however, its similarity to *Wipeout* (and that game's arguably superior playability) must be cause for concern, so it's heartening to learn that Konami is planning to augment *Speed King*'s rather simplistic arcade gameplay with features more suited to repeated play on a console. These include a 'time attack' mode and a 'ghost mode' in which players race against a phantom ship and their own personal best laps. Quite whether the PlayStation needs another futuristic racing game is debatable, of course. But in Japan, where the arcade company enjoys a high profile, gamers could well end up choosing this over *Wipeout XL*...



Stylistically, *Speed King* has a lot going for it but the gameplay needs a serious overhaul

Break Point

The tennis simulation is hardly the most exciting prospect for gamers looking for new videogame thrills, but Warwickshire-based developer, Smart Dog, is suitably qualified to give 32bit owners a good rendition of England's favourite summer sport



There are four surfaces to compete on in Smart Dog's tennis sim, as well as several different play options and a variety of players to choose from. There is also an extremely narcissistic replay mode which allows proud players to review their finest shots frame-by-frame and from any angle, too



Tennis sims don't crop up quite as much as football games, but there are still a fair few out there and, unfortunately, they all look very similar. Which means Warwick developer Smart Dog has given itself a rather challenging task with *Break Point*.

However, if any company has the credentials to create a stand-out title it's this one. The team that makes up Smart Dog also worked on the Mega Drive and Game Gear versions of *Pete Sampras Tennis* – one of the best 16bit tennis games, so at least they are not newcomers to a difficult genre.

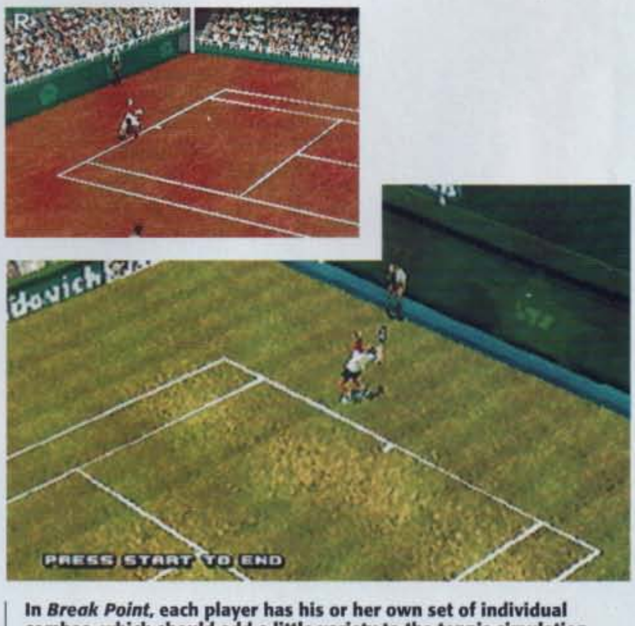
This veteran status already shows up in the early version of *Break Point* **Edge** has seen. Players are well animated and realistic, play is intuitive, but not overly simplistic and there's a good range of shots to call upon. Furthermore, although there are no real tennis players to choose from, the player can select a competitor from a decent range of fictitious candidates. They all have differing skills and they can even perform their own tennis combos, which should give the game a little more depth. There are four court surfaces to choose from and a range of play options, including tournament, singles and doubles.

Yes, it all sounds reasonably formulaic but there is not much you can do with tennis sims to radically upset the genre. Smart Dog have attempted to give this title a slight hint of aural individuality by bringing on Wimbledon TV

Players are well animated and realistic, and play is intuitive, but not overly simplistic

commentator Chris Bailey to provide in-game chat but the real test will be in game play. Judging by the evidence so far, it is a test that *Break Point* will be more than capable of passing. **E**

Format:	PlayStation/Saturn
Publisher:	Ocean
Developer:	Smart Dog
Release:	Autumn 96
Origin:	UK



In *Break Point*, each player has his or her own set of individual combos, which should add a little variety to the tennis simulation

Grandia

The current 32bit obsession with racing games and beat 'em ups, has to end someday. When it does the RPG will no doubt reclaim some lost ground. *Grandia* may provide the catalyst for change









The backgrounds in this new 3D RPG are multi-layered intricate affairs overflowing with colour and detail. The game's ten main cities are apparently hives of activity, each one with its own cultural identity

With the arrival of 32bit technology it was inevitable that the RPG would change for ever. The simple over-head views and cute little characters which graced dozens of SNES classics are facing extinction. The lure of 3D is hard for game developers to resist.

Grandia is an example of a new breed of RPG adventures. Although the characters are bitmaps, the locations are all built from lusciously textured polygons and, it has to be said, look absolutely beautiful as a result. Best of all, they retain the cutesy, *Zelda*-style look which has always graced Japanese RPG titles.

Locations are built from lusciously textured polygons and... look beautiful as a result

The story, set on a mythical world in the midst of industrial revolution, is the usual RPG bunkum. The player controls Justin, a 14 year-old boy who must travel to the continent of Elencia to solve the mystery of the ancient Anjel civilisation.

Although the adventure includes global travel by land and sea, there are actually only ten cities in the game: apparently the designers wanted to pack in as much intimate detail as they could. Consequently, each city has a distinct culture and atmosphere and its native inhabitants share common physical traits.

As with most RPG games, combat is possible in *Grandia*, although here quick reflexes and sharp decision making are more important than the character's physical strength. Before a fight starts, the player receives info about the enemy so that its possible to bow out of no-win fisticuffs before a punch is thrown.

It seems the designers of *Grandia* may have added new gameplay depth as well as great visuals to the RPG. The complex cities are a desirable feature and the industrial revolution slant (providing a backdrop of colonial emigration) gives a more interesting setting than the usual middle-earth tosh. *Dark Saviour* could prove that there is a place for RPGs in the 32bit world. Hopefully *Grandia* should, too.



Although steeped in the RPG tradition, *Grandia* holds the hallmarks of 32bit



This tree-top village setting perfectly exhibits the game's beautiful 3D scenery

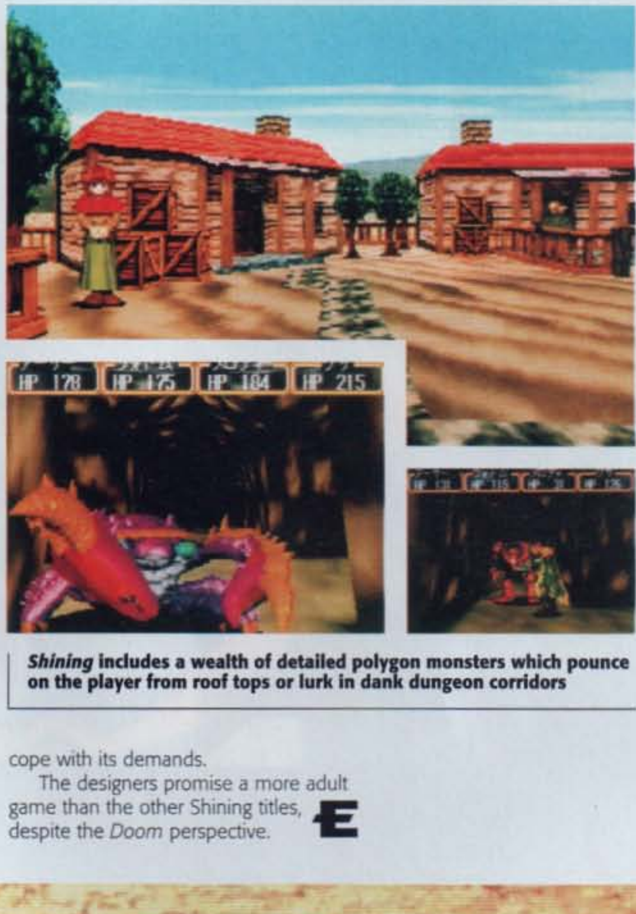
Format:	Saturn
Publisher:	Sega
Developer:	GameArts
Release:	Spring 97
Origin:	Japan

Shining the Holy Ark

The popular 16bit RPG series, *Shining Force*, made its Saturn debut last year with *Shining Wisdom*. Now the designers are making a stunning 3D addition to their action adventure portfolio



The smooth, realistic scenery was created using a special technique to mask angular polygons. Although 3D, the gameplay is classic RPG



***Shining* includes a wealth of detailed polygon monsters which pounce on the player from roof tops or lurk in dank dungeon corridors**

Format:	Saturn
Publisher:	Sega
Developer:	In house
Release:	TBA
Origin:	Japan

Although related to the popular Mega Drive RPG series, *Shining Force* (which includes top-view Saturn *Zelda* clone, *Shining Wisdom*), *Shining the Holy Ark* has a different story and a totally updated visual style to its ageing predecessors.

So updated in fact that the gameplan for this 3D RPG arcade adventure has been stored in Sega's vaults for a couple of years until hardware technology could cope with its demands.

The designers promise a more adult game than the other Shining titles, despite the *Doom* perspective. E


LANDS OF LORE II
COMMAND & CONQUER
RED ALERT



Command & Conquer: Red Alert **is Westwood's biggest ever title and is certain to become one of the best-selling games ever on the PC.** ***C&C*'s** **success derives from Westwood's unique ability to create visually attractive games and marry this with some of the tightest gameplay around**

Westwood Studios

Westwood Studios is the most successful videogame company in the US today. Edge visited its Las Vegas headquarters to discover what makes this design team different and to catch up on two of the most eagerly awaited PC titles in development



Westwood, Las Vegas. A shrine to hedonism. Living, breathing proof that Americans are the world leaders of the wasteful and the culturally bankrupt. Not in fact, the kind of place a team of highly motivated and creative programmers and designers might choose as their home. However, the Westwood team's life in this decadent hole seems to have had nothing but beneficial effects on their long line of strategy and adventure games.

Only the PC market seems to be able to sustain such fervent enthusiasm for these most detailed of games. Diminutive sprites, complicated interfaces and the kind of depth that drains copious amounts of midnight oil are the hallmarks of these most revered forms of videogaming. At the apex of the genre lies *Command & Conquer*. Since it was released a little over a year ago, well over one million copies have been sold and the vast majority of leisure PCs in Europe have seen it flicker across their monitors. With the inevitable sequel, *Command & Conquer: Red Alert* nearing completion in the 120 degree Vegas heat, **Edge** was jetted across to check up on it by Westwood's owner, Virgin.

No other PC game, with the possible exception of *Quake*, has been awaited with such expectation. *Red Alert* will probably sell more copies than any other PC game this year, and will certainly not disappoint. It will take the initiative in the PC networking battle back from *Warcraft II* - the only other game that has even approached *Command & Conquer*'s level of supporter fanaticism.

With the possible exception of *Quake*, *Red Alert* is the most highly awaited PC game ever

The most obvious feature to be added to *Red Alert* are the hi-res graphics. Whereas *C&C* appeared in blocky VGA the updated engine displays everything in crisp SVGA. This not only brings the game into the1990s, but also



Lands of Lore: Guardians of Destiny **has now been in development for over three years. It's scheduled for release in February**

Continued next page

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considerably improves the playability due to the fact that there is more space to display units on the screen at once.

The original *C&C* was played to death. One of the drawbacks was that you eventually spotted every foible of the computer opponent's AL. It was generally accepted that the PC's threat analysis in *C&C* scanned from the top of the screen downwards. You could fool it by placing one tank at the top to distract the attention from the main attack.

The computer AL in *Red Alert* has been overhauled to eliminate this, as well as many other problems. The other improvement Westwood are stressing they have made concerns the find-path routines that govern the automated movement of your troops around the screen. Losing troops and having entire armies wander off into the wilderness before getting stuck is a problem with all these 2D games and one that the field's leaders are all too keen to correct once and for all.

Complementing *Red Alert* is the firm's debut Internet project, *C&C: Sole Survivors*. This game is designed to bypass the need for a network to take on more than a few people. It is hoped that there will be room for many more players than before to take part simultaneously in the battles. And augmenting Westwood's commitment to multiplayer gaming is the upgrading of *Red Alert*'s network capacity to six players from *C&C*'s four.

Although *Red Alert* may be Westwood's biggest game, the company's other current project has been in development for twice as long. *Lands of Lore: Guardians of Destiny* was originally slated for release more than a year ago, but was delayed because of certain gameplay shortfalls. Then it was an entirely prerendered, *Creature Shock*-style experience. Though it looked fantastic the game didn't inspire much confidence in its playability.

The 3D technology may not be cutting edge, but it should awake the desire of PC gamers for RPGs

The changes that have taken place over the past 12 months look almost certain to have rectified this. A complete 3D realtime engine has been developed to enhance the game. This draws heavily on Westwood's experience with the excellent *Eye of the Beholder* series released a few years ago. While the 3D technology may not be cutting edge, it looks certain to awake the sleeping desire many PC gamers have to play computer RPGs. And the prerendered video sequences have yet to be cut out. They now link the realtime sections, and the rendering quality and the video playback rival the best that has appeared on a home machine.

Westwood's philosophy of releasing a few superb games rather than many average titles works. The success bodes well for the company; not to mention the millions of gamers who long to get hold of everything this isolated and unique team of 90 can develop. **E**







***LoL2* was originally developed as an entirely prerendered experience. During the past year, however, a full realtime engine has been added. The combination of both makes the game look very promising**

How it's done...

Westwood's green screen studio is the biggest in the state of Nevada. It has been used extensively in the production of both *Red Alert* and *LoL2*. Actors are filmed against the bare background and the director can map them over rendered scenery in realtime, make adjustments, and visualise the result immediately to minimise time wasting. Silicon Graphics Indys are used to manipulate the resulting film and make the video compositing as fast and painless as possible. However, it is still an extremely time-consuming process.



An actor on set with Westwood's realtime image processing tools in the foreground

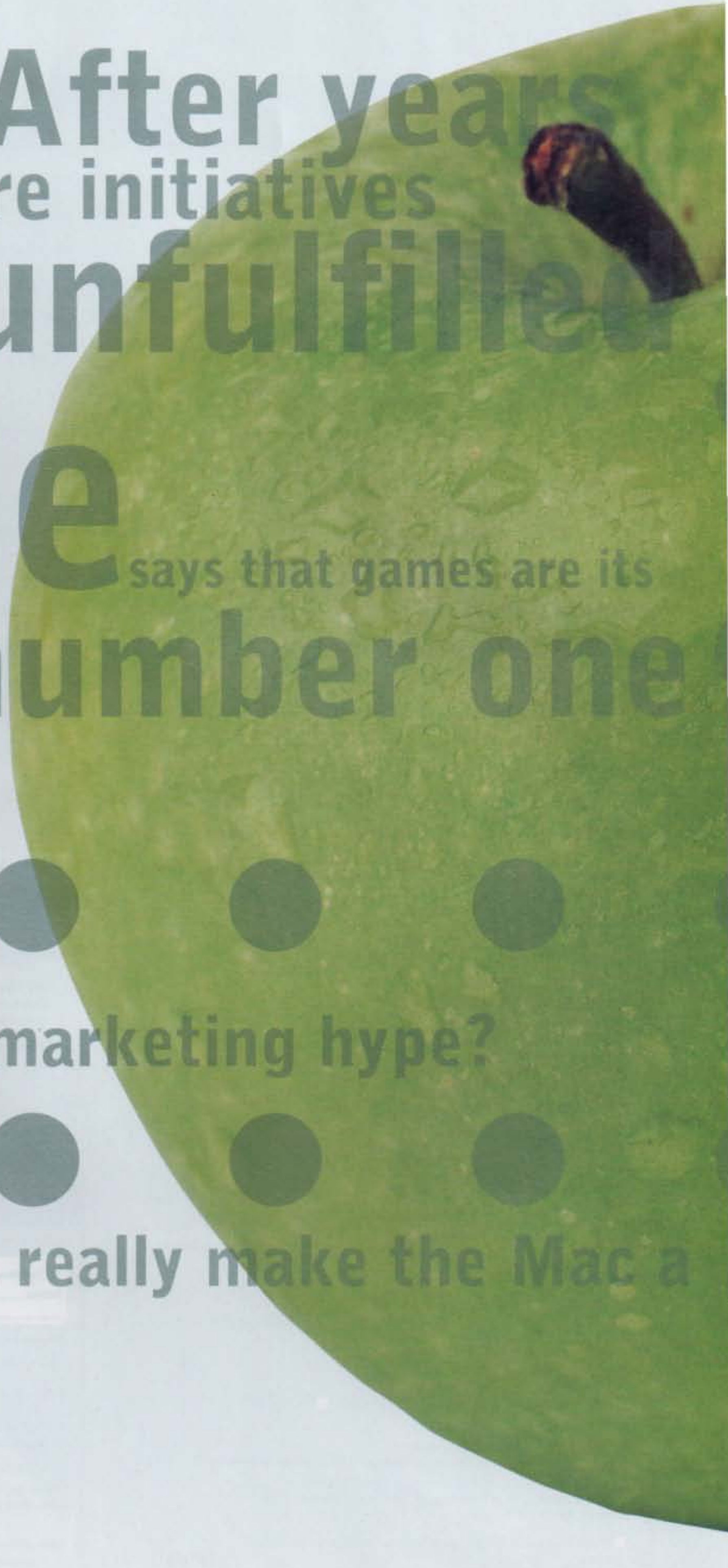








Planes flying over in a bombing raid of *Red Alert* (far left). The role of ships in the game has been increased greatly (above left). All the in-game graphics are now SVGA (above)

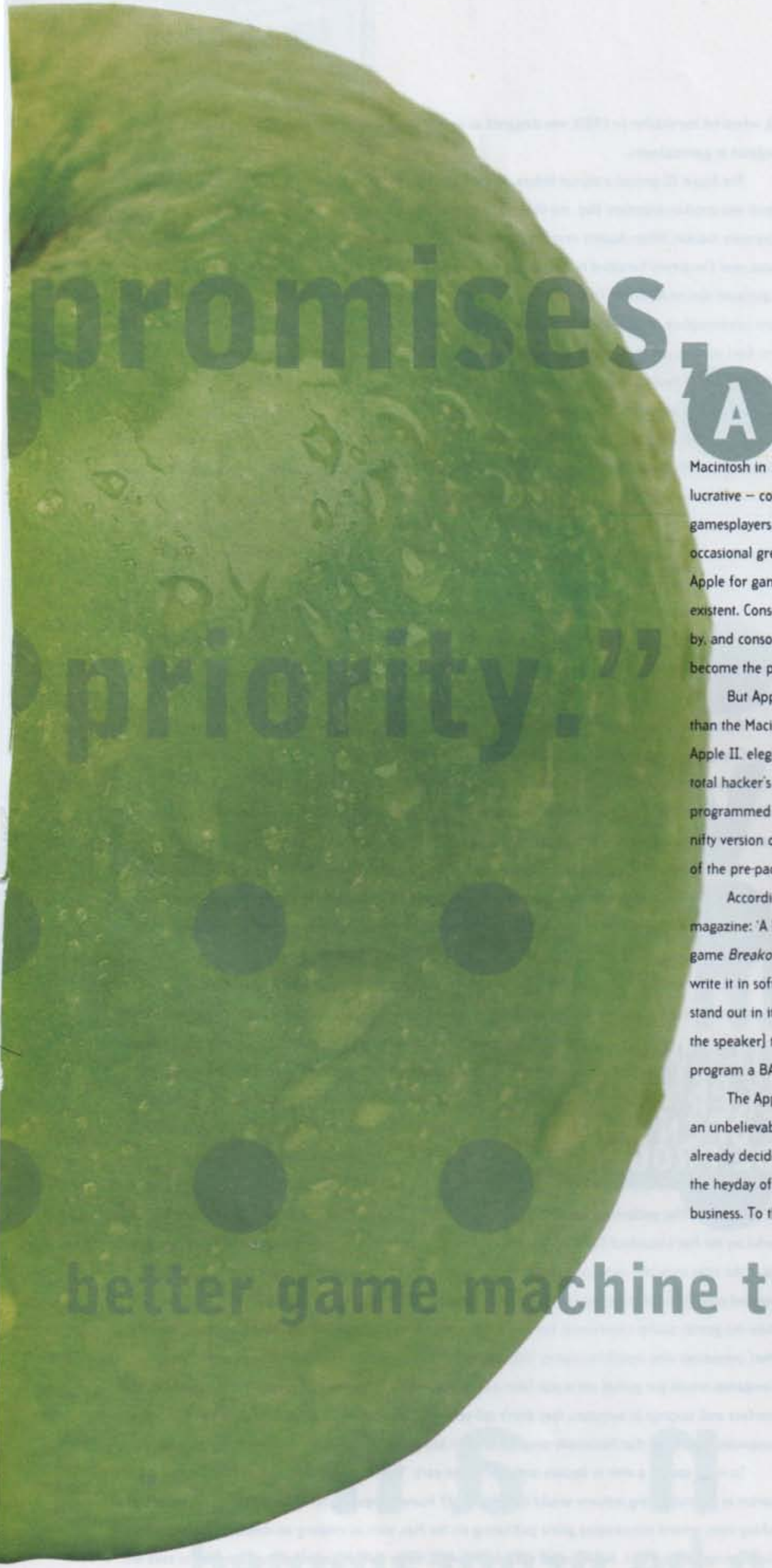


After years of meagre initiatives and unfulfilled

Apple says that games are its "number one

Is this just marketing hype?

Or can it really make the Mac a



promises,

priority."

A **pple, the seminal** Silicon Valley success story, was a company that grew out of a hacker ethic in which games played a pivotal role. But ever since the introduction of the Macintosh in 1984, it has fought shy of games, fearful that its important – and lucrative – corporate customers would regard a machine aimed at gamesplayers as a mere 'toy'. Although the Mac has been able to boast the occasional great game, the result of that anti-games policy is that support from Apple for gamers and game developers since 1984 has been virtually non-existent. Consequently, the gaming revolution has largely passed the company by, and consoles or the Microsoft/Intel brand of personal computing have become the platforms of choice for gamesplayers across the world.

But Apple's gaming strategy (or lack of one) actually goes back further than the Macintosh, to the days of the Apple III. The III's predecessor, the Apple II, elegantly designed by Steve Wozniak and released in 1977, was a total hacker's machine. It was 100% open and ready for games to be programmed by anyone who picked it up. It had expansion slots galore and a nifty version of BASIC in ROM (it was introduced, of course, before the advent of the pre-packaged software industry).

According to Wozniak, quoted in a 1986 issue of CALL-A.P.P.L.E. magazine: 'A lot of features of the Apple II went in because I had designed the game *Breakout* for Atari. I had designed it in hardware [and] I wanted to write it in software. So a lot of these features that really made the Apple II stand out in its day came from a game, and the fun features [like colour, and the speaker] that were built in were only to do one pet project, which was to program a BASIC version of *Breakout*.'

The Apple II ended up being a consummate game machine, as well as an unbelievably successful all round home computer. However, Apple had already decided in 1979, during (or even before) what many consider to be the heyday of the machine, that its future was not in home computing but in business. To that end, the next stage in the company's development, the Apple

better game machine than the PC?

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Developer Bungie used *QuickDraw 3D* to build tools, claiming that it has cut weeks from tool creation and months from release schedules

III, which hit the market in 1980, was designed as an all-business, no-fun platform; it was certainly not targeted at gamesplayers.

The Apple III proved a dismal failure, so the Cupertino company went back to the drawing board. The result was another expensive flop, the ill-fated Lisa, whose 1984 launch was again aimed solely at the corporate market. When Apple's next business-oriented computer, the Macintosh, finally appeared later the same year (its arrival heralded by a Ridley Scott-directed TV ad which premièred in the ridiculously expensive Superbowl slot on American TV) it introduced consumers to an enormous number of innovations which are now commonplace, among them WYSIWYG (pronounced 'Whizzy-Wig', an acronym for What You See Is What You Get) screens, an intuitive and easy-to-use operating system, a graphical user interface (GUI), a mouse, multiple built-in fonts, a high-resolution display, a 3.5" disk drive, and high-quality output via laser printers. But gaming was not on the Mac's trendsetting agenda.

'Apple has a strange history with games,' says **Ben Calica**, Apple's senior product manager for game technologies. 'When the Mac first came out, the games people were saying: "Excellent graphics, great sound, this would be very cool for games." The general reaction on the PC side of the world, however, was to kind of point at the Mac and laugh and say: "Ha ha, this is a toy."' The result? 'Apple as a corporation had the reasonably childish response of saying, "No, no, it's not a toy, we swear!" and they did everything possible to prove that the Mac was a business computer.'

Games developers therefore received precious little support from Apple. 'They weren't so snobby as to not talk to us,' says **Bill Dugan**, the Mac high priest at Interplay's MacPlay division. 'Apple had us listed as a developer, and we were able to buy cheap hardware [through the developer discount program], but Apple had no thought of games in their original marketing plan.'

A small group of dedicated companies, like Silicon Beach (*Enchanted Sceptres*), Delta Tao (*Spaceward Ho!*), Changeling (*Peg Leg*), Cassady & Greene (*Crystal Quest, Glider*) and Ambrosia (*Maelstrom, Apeiron*) created games with a distinctly 'Mac' look and feel which were welcomed with open arms by the machine's devotees. In the past few years, outfits like Graphic Simulations (*F/A-18 Hornet*) and Bungie (*Marathon*) have created Mac-only titles which would have been classed as standouts on any gaming platform.

But although the Mac's exceptionally well-structured operating system and GUI are great for making easy-to-use business and publishing packages, it is very hard to write directly to the hardware, something most games require if the graphics are to impress. And the early Macintoshes' monochrome screens didn't lend themselves to games much, either.

Still, the Mac has always had potential as a game machine. With a standard 640x480 screen, the quality of graphics on the Mac is unsurpassed. Because the operating system and hardware are standardised, there is no need to write to dozens of potential configurations, or provide tech support to gamers having trouble running software – something responsible for more returns than any other factor on the PC but largely a non-issue on the Macintosh.

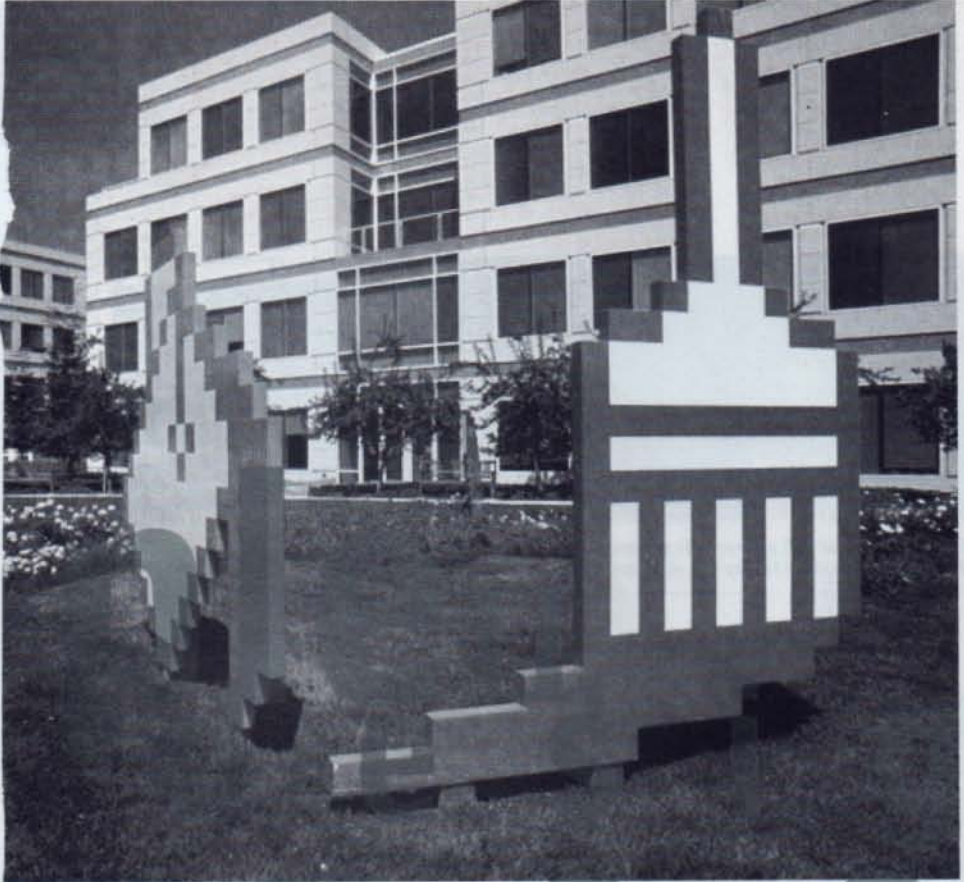
THE APPLE II, ELEGANTLY DESIGNED BY STEVE WOZNIAK AND RELEASED IN 1977, WAS A TOTAL HACKER'S MACHINE. IT WAS 100% OPEN AND READY FOR GAMES TO BE PROGRAMMED

Even after colour screens became standard, most PC ports to the Mac performed terribly, mainly because the resolution of a VGA PC game – 320x240 – looked awful on the Mac's standard Super VGA-quality screen. Mac users, accustomed to high-quality graphics, stayed away, the titles sank like rocks, and so did the Mac's reputation as a game machine. A couple of larger PC-oriented publishers, Interplay and LucasArts, have discovered a hidden money-maker in the Mac (their secret? Make the games quality conversions, not cheap ports, and don't skimp on the marketing budget), but most other companies who tested the waters (like New World Computing and EA) were soon scared away. 'Companies would put games out a year later on the Mac, with blocky non-Mac graphics and a non-standard interface and, surprise of surprises, they didn't sell very well,' says Calica. 'As a result, there is still a bunch of companies which feel that Macintosh people just don't buy games, which is, in fact, absolutely not true.'

So what caused a shift in Apple's attitude? In the early '90s, when it became clear that the next growth market in the computing industry would be a (second) home-computing revolution, Apple took some initial, halting steps toward encouraging game publishing on the Mac, such as creating an in-house position for a 'game evangelist' in 1991. But it wasn't until the PowerPC came on the scene that things started to take off.



elegantly designed by Steve Wozniak released in 1977, open and ready for games to be programmed



'Over the last three years, there's been an underground effort that led Apple to directly support games,' says Calica. To kickstart developer support for its new RISC-based PowerPC Macs, Apple set up programming forums, or 'kitchens', which matched developers with Apple engineers who would demonstrate the best way to get the most power out of the new chip. 'It didn't have anything to do with games initially, but it happened that the engineers really understood the basic nature of the system, and they really understood the PowerPC... and they loved games,' explains Calica. 'Motorola really wanted to show off what the PowerPC could do, and games were a great way to do that – at least that was the rationalisation that was used. The bottom line was that a whole bunch of people wanted to see cool games, so you'd get five engineers and 10 of the best game developers together and sit in some hotel room for three days just cranking out code. They'd tweak the hell out of things. And it turned out that the PowerPC is a great chip for games.'

Other changes in the videogames industry, notably the rise of 3D games in which graphics are platform-independent (that is, they will render to the highest resolution available), also made Mac development more appealing. 'It was hard for us to justify saying, "Look, we're only going to represent 10% to 20% of your sales, but it would be really good if you completely redid your graphics so they are up to Mac standards," but it was really easy to say, "Look, as long as you're going to make this 3D rendered game, let's make sure it renders really well,"' continues Calica. '*Doom II* and *Dark Forces* came into the some kitchen. Going in, they were getting about 80% of the performance they expected, and coming out they had around 120%. If you look at *Doom II* on every platform it has been released on, the Mac version has the highest resolution and the biggest screen size. That's because of the PowerPC. It rules as a game chip. That's why Sega is using it as the base chip for *Virtua Fighter 3*.'

was a hackers machine.

Still, a lone game evangelist and a few game kitchens represented practically no effort to a corporation of Apple's size. It took the three 'Ms' to really force Apple's hand: money, market share, and Microsoft. First, Microsoft announced the *DirectX* suite of application program interfaces (APIs) for *Windows 95* game development. 'In this one case, it took Microsoft doing it for Apple to say, "Okay, maybe we've not been real smart in terms of games,"' says Calica. Then, a number of internal and external studies commissioned by Apple showed that although games are the fourth stated reason for purchasing a particular computer system, they end up being the first actual use and are the number-one software category in terms of actual money spent at retail. 'I don't think on the surface people make a purchase decision based on playing games,' argues Calica. 'But let's face it, if a month later they're using their new machine to play games more than any other use, don't tell me games weren't in the back of their minds when they were deciding which machine to buy.'

Apple's upper management agreed. And if people regard gamesplaying as an important factor in deciding what kind of computer to buy, then Apple needs to make sure that the Mac stacks up as a games



POWER PC VS MMX

DESPITE THE HYPE OVER THE GRAPHIC SPEED OF INTEL'S NEW MMX CPU FOR THE PC, THE RISC ARCHITECTURE OF THE MOTOROLA POWERPC CPU GIVES APPLE MACS THE EDGE IN HANDLING 3D

The heart of the Power Mac is Motorola's PowerPC chip, which is based on RISC (Reduced Instruction Set Computing) technology, in contrast to the CISC (Complex Instruction Set Computing) Pentium chip found in the majority of *Windows 95* based PCs.

MMX is a new version of the Pentium (586) from Intel. It provides 57 new instructions and promises to vastly improve multimedia performance. This sounds great until you realise that the multimedia performance MMX enhances most is video processing. Unfortunately, most gamers care more about the acceleration of 3D data than the quality of in-game movies, which tend to get skipped.

The most significant feature in the MMX instruction set is SIMD (Single Instruction, Multiple Data), which enables one instruction to operate on several sets of data at once. There are also eight additional 64bit MMX registers – but they sit on top of the Pentium's floating-point registers, meaning that floating point and MMX instructions cannot be run simultaneously without the risk of one or the other being corrupted.

There are four new data types in MMX, and all instructions are single-cycle, which means they are run very efficiently by the processor. Intel claims speed improvements over non MMX Pentiums of between 40% (MPEG-1 video applications), and 300% (image processing), with speech recognition and video-conferencing falling somewhere in between.

Because of the overlaying of the MMX registers and the FPU registers, however, 3D applications, which rely heavily on floating-point operations, will be severely hampered when trying to use MMX functionality at the same time. So forget about super-fast video textures in your 3D worlds with MMX.

MMX-enabled programs will not be compatible with previous generations of the Pentium, requiring an upgrade – a great way to sell hardware but not the best means of ensuring a large userbase. Programming for SIMD is also allegedly very difficult, although Intel plans to distribute free MMX enabled libraries.

In contrast, the PowerPC has four times the Pentium's floating-point and fixed point registers, and delivers the highest floating-point performance of any consumer-level microprocessor. To gamers, that means that a 133MHz Power Mac delivers far better 3D performance, all other things being equal, than a 133MHz Pentium. The Power PC's design is also simpler than the Pentiums, with fewer instructions (all of which are of a uniform size), and better memory management, which can result in higher performance.

MMX's performance on an application, not a benchmark, level, will probably be unable to deliver 300% improvements, since programs will call both MMX and non-MMX instructions, and the benefits it does offer will probably not affect players of 3D games.

Continued



From left to right: Anark's *Galapagos* uses *Chaos VR*'s 3D engine and will appear first on Mac; Fractal Design's *Poser* uses *QuickTime 3D* to create human-like figures on the Mac; Virtuality's *Chaos VR* runs at 30fps on a 120Mhz 604 at 640x480; Activision's *Spycraft*, a quick port from PC to Mac

machine. 'It has been a long process convincing management that this is something to take seriously,' concedes Calica. 'But they take it seriously now. They see it as a big business issue and, as a result, the commitment is there.' So now that the desire to support games exists on the corporate level, what do Calica and the rest of the 'gaming underground' at Apple intend to do with it? What can they provide developers? And what exactly is their strategy? 'Apple's strategy for games is to make sure that the coolest titles are on the Mac,' says **Mark Gavini**, Apple's aforementioned game evangelist. 'And if it's a conversion from an existing *Windows* game, we want it to look best on the Mac.'

If it is to continue to have strong sales in the home (and despite the rumours of its imminent demise, the company continues to sell more machines every year), Apple needs games. But in an interesting concession, the company is not following the console development model, based on attempting to attain exclusive titles. 'I'm not going to delude myself into thinking I can convince companies to do a lot of Mac-only titles,' says Gavini. 'If you look at the size of the market, big companies are not going to ignore *Windows*, but I don't want a computer buyer to be able to say: "Well, I should buy the Wintel system because all the cool games are there." I want to show them that the same cool games exist on the Mac side.'

So what can Apple offer developers? For a start, money. Porting a game is fairly cheap, and it can provide a good return, especially in the less crowded Mac market, where titles have a longer shelf life. Apple can also virtually guarantee to make technical support calls a thing of the past – a single tech support call can cost the developer anything up to £15 or £20, a cost often greater than the profit margin it made on the game in the first place. And the Mac also boasts a standardised architecture for which to develop. 'In many ways the Mac is as close as you can get to being a "console" PC,' says Gavini. 'You don't have to worry about 18 billion different sound cards, weird SCSI cards, or what IDE card it has.'

Quality of graphics was the main reason most PC ports failed on the Mac. With 3D graphics and the proliferation of SVGA games, PCs have now attained parity with the Mac in terms of graphics, which increases Mac games' chances of success in the market. A simultaneous release on Mac and PC (with the additional benefit of mutually beneficial marketing campaigns) increases those chances even more.

But how easy has it been to convince developers? 'It makes it easier when we can point to sales figures of $100 million-plus per year of Macintosh games,' laughs Gavini. 'People listen to stuff like that. You can go to the suits and say: "Look! Money! Numbers!"'

INTERPLAY AND LUCASARTS HAVE DISCOVERED A HIDDEN MONEY-MAKER IN GAMES FOR THE MAC

In addition to approaching developers from a numbers angle, Apple has implemented a number of new technologies specifically aimed at game developers, namely the *Game Sprockets* series of APIs (see column on page 60). Other reasons to develop for the Macintosh? For one, and maybe PC gamers should brace themselves, when it comes to the hottest 3D games, the Mac is flat-out a better platform than the PC. First, the 3D acceleration currently enjoyed by many *Windows* PCs is



coming to the Mac. Not only are several top chip and board manufacturers planning drivers for *QuickDraw 3D* (not just for games, but for other 3D applications as well), but Apple will soon be announcing a new home Performa model incorporating 3D acceleration on the motherboard.

Beyond that, there is the Macintosh CPU. Because it is a RISC chip (versus the Pentium's CISC architecture) the PowerPC is far better at doing the geometry necessary for 3D graphics. We're not talking about the rendering or drawing to the screen, but the actual 3D calculations. That's because the PowerPC has much more precise floating-point maths power than the Pentium. 'What about Intel's MMX?' PC enthusiasts might ask. Well, it's unlikely that MMX will do anything to enhance 3D performance, and it may even slow it down (see column on page 57). All this can only help Apple's cause.

Apple will also soon start the first discussions with developers on something called the Common Game Format. This specification for online 3D games would enable a user playing a tank simulation (or even, say, a golf game) to play in the same virtual world as someone playing a flight sim, for instance. Imagine thousands of players in one virtual world, each having their own game experience, but each able to interact with one another, and you begin to get an idea of the potential of such a system.

The Macintosh has always been known as a multimedia machine, and there are a number of multimedia technologies with which Apple is attempting to stimulate game development. *QuickTime VR* (used to produce '3D' scenes similar to those used in *Zork Nemesis*) is getting a facelift, an API, and a significant price reduction for its version 2.0 implementation. *QuickDraw 3D* (Apple's highly extensible 3D system architecture) isn't just invaluable in high-end 3D and scientific packages; it also makes tool creation for 3D titles immensely fast (Bungie estimates that it has saved months in the development of the forthcoming *Free For All*). And a modified version of the *QuickDraw* 3D file type, 3DMF, is being used in version 2.0 of the VRML spec.

QuickTime itself, currently in its 2.5 revision, now has the capability to accept *QuickDraw* 3D layers for playback, as well as, of course, sprites, movies, sounds, and MIDI information (there are a host of new instruments, licensed from Roland, in 2.5). Apple is working toward corralling all these multimedia capabilities (most of which are cross-platform compatible) into a new standard, the QuickTime Media Player, which will let people work with all of this technology together. To end-users, of course, it's transparent – they'll just enjoy seeing 3D objects with movies playing on their faces rotating inside other movies with wonderfully scored MIDI soundtracks.

And of course, it's all viewable across the Internet. Netscape has selected *QuickTime* as the standard plug-in for movies, and a 3DMF plug-in exists for viewing 3D files on Web sites. Although gamesplayers' minds may boggle at the number of realtime, online, multiplayer derivations of games possible using Apple's technology, the developers who aren't excited about the potential of this multimedia technology are probably the same ones dismissing the Internet as a fad. It may not be commercially viable or even advisable yet, but the integration of multimedia and online technology is certainly a mouthwatering prospect.

Apple also provides support to developers in the form of its 'game kitchens', and since the company has flatly stated that it will never develop games software of its own, developers don't need to worry about their technology ending up in a firstparty game. Nor do developers need to worry about Apple releasing a 'Super Mario 64' which would eclipse all thirdparty games. The company also provides co-marketing dollars and free PR for games which it thinks show off the Mac's capabilities well.

Reaction to Apple's new game strategy, particularly *Game Sprockets*, has been overwhelmingly positive among the developers **Edge** spoke to. 'We took what existed in the DOS version of *Command & Conquer* and then rewrote all the screen-handling logic to deal with a playing area which is four times bigger on the Mac –



Interplay's *Star Fleet Academy* will ship simultaneously on Mac and PC, giving the company the commercial benefit of a pooled marketing spend across the two platforms

continued next page

continued



GAME SPROCKETS:

Apple *Game Sprockets* is a software development kit (SDK) available, royalty-free, from Apple. It contains six APIs (application program interfaces) designed to make development of games easier. 'Some parts of *Sprockets* are "duh-ware",' says Ben Calica, 'meaning they're things we should have had years ago, like an easy way to hide the menu bar, write directly to the screen, etc. And some of them are what we call "cool-ware".'

The sprockets are easily extensible libraries of *C* code and should make it easier for game programmers who don't want to memorise the *Inside Macintosh* series of technical books.

The sprockets, in general, compare to Microsoft's *DirectX* APIs, with a couple of differences. First, they are more customisable than *DirectX*, particularly *QuickDraw3D Rave*. Second, in some cases they provide greater functionality.

There's no doubt that the presence of these sprockets will make conversion of *Win95* titles using *DirectX* to the Mac far easier.

NetSprocket: This provides a standard user interface for playing a game across a network. Dialogues and underlying code for configuration, joining and hosting a game are included. The API uses Apple's Open Transport for TCP/IP, AppleTalk, and modem access. *NetSprocket* uses a client/server topology and has an extremely small overhead.

SoundSprocket: This sprocket standardises traditional sound functions, but also provides support for killer 3D sound capabilities. For 3D sound, the location of the listener and each sound channel is given a specific position as well as velocity vectors in a virtual audio space, which dynamically changes to create the illusion of spatiality and movement. The sprocket uses the PowerPC for signal processing, to simulate the Doppler effect, distance attenuation, echoes, and spatial positioning. The 3D sound is integrated with camera position in *QuickDraw 3D*.

DrawSprocket: Enables double and triple buffering on the Mac for smooth display of graphics. The sprocket automatically uses the best hardware solution for a given Mac – either true buffering, page-flipping, memory copies, or through the standard CopyBits function call. *DrawSprocket* also enables on-the-fly switching of resolution and colour depth.

SpeechSprocket: *SpeechSprocket* uses Apple's PlainTalk technology for speech recognition. Spoken words can be used to trigger commands or run macros. Though speech input does not work well for single words (like 'fire'), it works well for longer phrases (like 'select BFG'). The speech recognition is voice-independent.

QuickDraw 3D Rave: This provides a hardware abstraction layer for near-direct access to 3D graphics acceleration hardware. It offers 3D acceleration in software if no hardware is present. *Rave* also enables custom rendering technologies to be plugged in and is compatible with *Windows 95*.

InputSprocket: This provides support for mouse, keyboard, and analogue or digital input devices such as joysticks. It also provides a standard dialogue box for input devices.

you actually see more of the world in game maps,' says **Steve Wetherill**, director of R&D at Westwood. 'This posed a problem initially, as running in high-res means that the CPU has to work much harder. However, after incorporating *DrawSprocket* [part of *Game Sprockets*], we found that the performance boost was more than enough to compensate.'

Bungie, one of the biggest Mac-first developers, has wholeheartedly embraced *Sprockets* in its new game, *Free For All* (working title). The tools were written using *QuickDraw 3D* and the game will support *Rave* on the Mac and PC. Wirehead Systems, which is coding the Mac and PC versions of *VR Baseball* for VR Sports, is using *Rave* for both versions of the software, and managed to get a *Rave* graphics test running on *Windows* by changing only three lines of code.

'*NetSprocket* is just unbelievably easy to use compared to the old Apple programming method. You don't have to worry about anything,' says **Tom Utiger**, project manager at Wirehead. Utiger also explains why the game kitchens are popular: 'If you're Sega or Sony, you have a big stake in your games being the best games, so there's always this sort of tension: "How much do we tell the developers?" Apple has no incentive to do that, so there's a nice dissemination of information at the kitchens. You have access to the engineers and you can just get stuff fixed. You say, "Tell me about the *InputSprocket*," and in about two hours it's working.'

One area where developer reaction has not been so positive concerns the issue of co-marketing and PR support from Apple. 'When we visited Apple, we asked what incentive they could offer us to do the Mac version of our game first, or even as an exclusive,' says a director of a small Mac development house who wishes to remain anonymous. 'Their answer was essentially, "Integrate our *Game Sprockets* and if the title's good, we'll spread the word," but they didn't give us any guarantees. Compare that to console companies like Sega and Sony, who are pushing really hard to get as many novel and exclusive titles as possible – games that really differentiate the platform.

'Our impression is that Apple isn't too concerned about exclusives or early Mac-first titles, which, in our opinion, is what they need to differentiate themselves. The *Game Sprockets* seem to be useful, but that's beside the point. Unlike DOS, the problem of the Mac gaming scene was never really technology. All in all, we feel Apple's efforts go into developing and hyping their technology, but they should be providing the incentives developers need for committing to a platform that has smaller sales.'

So does Apple have a responsibility to help these small developers out with cash incentives and concrete support? 'I don't know if we have a responsibility, but we'd like to,' says Ben Calica. 'I don't want anyone to fall through the cracks. Do we buy pages of advertising and divide the cost? I can't say anything for sure, but watch this space. We're trying to loosen the purse strings.'

So, is this the beginning of something big? Will Apple's new commitment to games pay off? Will the Mac become a dominant gaming platform? It's unlikely, but expect to see an upsurge in Mac game development and a trend toward simultaneous release of titles on PC and Mac. Certainly, most A-list titles released in 1997 will eventually be available on the Mac, and the Mac versions may, in fact, be 'better' than the PC originals. But then again, this may have as much to do with the development team getting a second bite at the cherry as any Apple hardware or tool superiority.

Either way, more than $100 million in Mac games software was sold last year, and companies that release games 'the right way' on the Macintosh tended to do well. This will undoubtedly continue, and with the introduction of *Sprockets*, releasing a game Apple's preferred way (with high-quality graphics) has become far easier. Creating a quality Macintosh port should not be a problem for large and medium-sized developer, and the Mac offers small developers the opportunity to be a big fish in a little pond and get exposure which would not perhaps be possible for them in the PC world.

While the technology exists to enable a 'killer app' to appear first (and perhaps exclusively) on the Mac, the lack of effort on the part of the evangelism group to secure and promote Mac-first or Mac-exclusive titles is worrying. But despite its inauspicious beginnings, the Mac is both a good development platform and a good delivery platform for games. Don't expect Apple to steal the mantle of premier platform in games, any more than you'd expect people to begin to use MS-DOS machines for desktop publishing. However, Mac gaming ultimately offers some exciting possibilities. Essentially, it all comes down to how important Apple believes games are to the Macintosh's continued success.

The good news for gamesplayers is that, according to Apple's Bill Dugan, 'They're critical.'





APPLE'S SENIOR VICE PRESIDENT OF WORLDWIDE CORPORATE MARKETING

AN INTERVIEW WITH SATJIV CHAHIL

Edge So why has Apple become so excited about games all of a sudden?

Satjiv Chahil This is not something that we're just doing for the sake of 'being there,' but to make a profitable business, and to serve our customers and developers.

I'd like to correct the many misconceptions people may have that we are getting out of the home consumer space. We are definitely still interested in the home consumer space. And in the home consumer market, what do people buying computers look for? Entertainment – and that means games. That's the primary use of computers, even though, initially, consumers may say the interest is for learning or other reasons. So we are totally aware of what is generating the sales within the consumer markets. And so our decision to concentrate on games is a business strategy to get Apple a reasonable share and profitability in that market.

Edge But information about how and why people buy computers has been available since before the launch of the Mac. Why, then, has Apple waited 12 years to start promoting games?

Satjiv In the past, we were always sort of embarrassed to have the Mac be referred to as a 'toy' computer or as a games machine in any way. We feared that any association with games would make us look like not the proper corporate computer. So we went in the reverse direction and even tried to avoid any associations with games.

We always had game developers on the Mac without us wooing them, but around the time that CD-ROM started to take off, the [anti-game] attitude at Apple started to change.

Edge So when did Apple change its mind?

Satjiv In 1993. The first step was when Apple went public and said: 'We'll ship one million CD-ROM players.' We launched our authoring solutions with *Macromedia*, and so on, and when the numbers fell out in year one, we found out that two-thirds of all multimedia authoring was done on Apple systems.

Edge But the multimedia authoring that you refer to isn't necessarily for games...

Satjiv Of course, but it showed that developers prefer Apple as a development platform. The importance of games really hit us as sales in the home market were going past those in the business market. We saw that games were affecting market share and profitability. So, we said: 'Let's get serious – games are a serious business.'

Edge As a starting point for your games effort, would it be safe to say that you're aiming to have at least half of the PC's best titles available on the Macintosh?

Satjiv Absolutely. That's exactly my mandate. I would like to get the top 10% to 15% of games onto the Mac, at the very least. We've got to focus on getting the best games on our platform. And if the top 10 is a starting point, I want to know the plans for when we get the top 10 in every genre.

And we have new ideas about games. Look at our experiments with *Mission Impossible: The Web Adventure* – we had 26 million hits as of a few weeks ago.

Edge Can the Mac ever overtake the PC as the game platform of choice?

Satjiv Our goal may not be to overtake but to have the cream of the market.

I'll give you an example. We opened a studio with [Hitch Hiker's Guide to the Galaxy author] Douglas Adams, called Digital Village. He said to me, 'I don't know what this "Apple's only got 10% market share" fuss is about. Everybody I know and respects uses a Mac. So even if it's only 10%, it's got to be the top 10%.'

So I said, 'Douglas, thank you very much. I would like the top 20%! [Laughs.]

So we can target the top 20-25% of gamers, but that means I must have the top 10 titles. And, not only does that mean I must have the top 10 titles, but we must also be the game platform that the developer has the least hassles with.

For the developer, there must be that proposition, and for the consumer there must be a great experience. We've got to go for both of those. But for us, to acknowledge that this is a serious market is the first move. If you look at our history, you'll see that when Apple sets its sights on someplace and lines up everything, then we are able to deliver that. When we become fuzzy and grow schizophrenic, we just start losing everything.

Edge Does Apple have the marketing muscle to change people's perception that a Mac isn't the machine to buy if you want to play games?

Satjiv You're right: the majority of consumers don't regard the Macintosh as the premier gaming platform. But we're not going to be able change this perception with any of our marketing muscle. The change comes from new game developers coming to the Macintosh for the first time, or existing Macintosh game developers using the technologies that we're giving to them to provide the best possible games on the Macintosh.

Edge But this won't happen without Apple getting the ball rolling. Without direct Apple intervention, you're stuck on the wrong side of a 'chicken-and-egg' scenario: game developers won't invest the two years of time and the millions of dollars necessary to make a killer Mac game until there's a huge audience of Mac gamers demanding it. Conversely, there won't be a huge audience of Mac gamers until some great games come along.

Satjiv With the realm of 3D, the nature of games has changed such that the majority of the game code is used to define a world [all the texture maps and 3D models] and only a small amount of code expresses this world on a particular platform.

This means that once you've completed your game on one platform, it's relatively easy to port it to another platform – because you only have to reprogram a small amount of the code. So, for example, of the best games from last year, games like *Doom II*, or *Dark Forces*, for example, the best version was the Mac version.

Edge But merely porting games from the PC world isn't going to help the Macintosh attract die-hard gamers – you need great games released at the same time as the PC version, if not before. And in the marketing war that you'll have to fight to help accomplish this, can you compete with, say, Nintendo, which is spending about $50 million advertising just the first 500,000 N64s in the US alone?

Satjiv No. But I can be clever. Take the *Mission: Impossible* campaign we did. The whole world thinks we spent $50 million. The truth? Paramount spent $50 million. We spent a lot less.

I have to do innovative, clever, targeted marketing that creates marketing multipliers. I would feel irresponsible to just throw $50 million behind 500,000 units. I'll work with people to do some co-marketing things to figure out how I can reach a target audience.

We have a lot of strengths. Our brand name, for instance. It's easier to say 'Apple's a cool games machine' than to say 'IBM is a cool games machine' or 'Compaq's a cool games machine'.

Edge Are there enough Mac owners to support a thriving game market? Surely most game developers will shoot for the PC market first, and maybe, just maybe, the Mac market second?

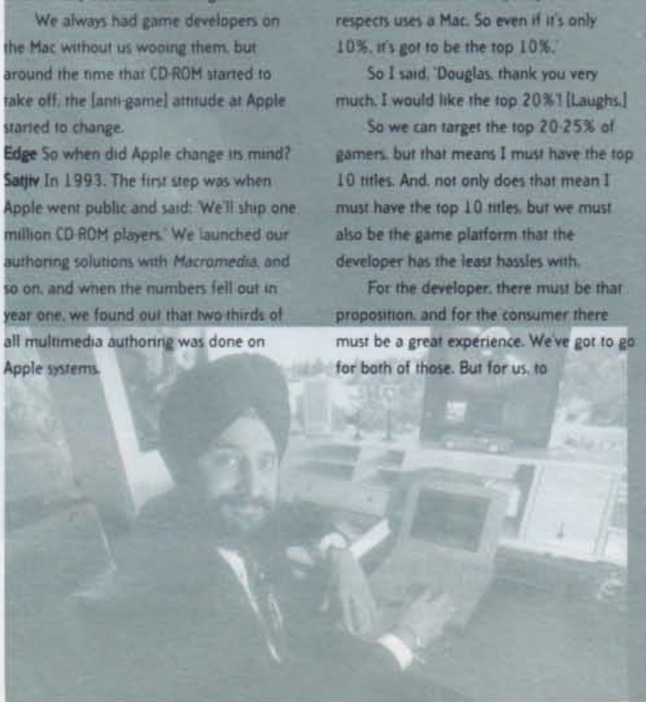
Satjiv Here's what I've always wrestled with. The perception is that the Mac has an 8% market share, but the reality is that we represent more than 20% of all of multimedia computers. There are 25 million Macs out there. And we are much better to develop for! There are no tech support calls, we're easier (and now, with *Sprockets*, far easier) to develop for. But nobody knows that. Game companies are doing their math on 8% and that becomes a self-fulfilling prophecy.

Edge Apple has developed some very powerful APIs with which to potentially create some great games. And so why not use them yourselves to create great in-house games by Apple, for Apple?

Satjiv We do not want to compete with our thirdparties. That's our relationship with the entire content industry, and it actually makes us more natural partners. If we can give them the best tools, and an environment to make money, then we make money – because more Macs are sold – and the marriage lasts.

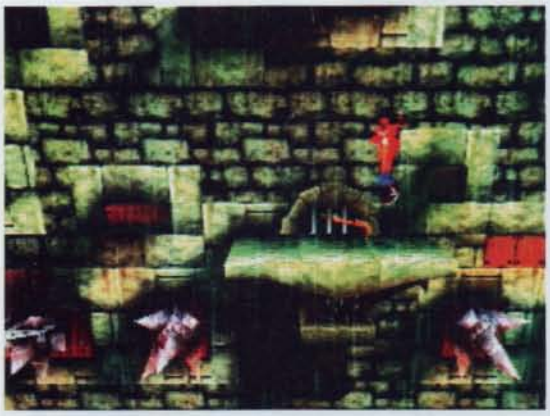
Edge But Sony, Sega, and Nintendo – in fact, all hardware platforms – use in-house games to start the ball rolling. *Virtua Fighter 2* and *Super Mario 64* attract gamers to the platform.

Satjiv The difference there is that whereas, say, the Nintendo 64 is a brand-new platform with no installed base, we have an installed base of 25 million already. We are very, very hungry to get games out there. But, it's just not our charter to compete with developers. ■



Crash Bandicoot

The future of the platform genre or merely a very old wolf dressed up in an extremely fashionable sheep's clothing? Sony's 32bit saviour, *Crash Bandicoot*, attempts to marry some nostalgic gameplay to the best graphics yet to appear on the PlayStation



So dazzling are *Crash Bandicoot's* graphics, special effects and backgrounds that it's easy to forget that you're actually playing a very basic platform game. Even confrontations with the boss characters fall into an easily learned pattern



Whether or not developers Naughty Dog secretly hoped Sony would take on *Crash Bandicoot* as their official mascot is open to debate. Sony themselves are officially denying taking on the antipodean rat as the popular face of corporate video gaming (probably until they see if it sells or not). Whether Sony are happy about it or not, *Crash Bandicoot's* 'interactive cartoon' pretensions and the fact that it's the strongest character-lead game in the PlayStation's roster during the Christmas season, mean it has been dragged, kicking and screaming, into a three-way war with Sega's *NiGHTS* and Nintendo's much lauded *Super Mario 64* this autumn.

while nights and mario 64 offer innovative game mechanics crash for all its 3d trickery and sheen is still rooted in the land of the traditional left to right platformer

The battle could well be a tough one, as while both *NiGHTS* and *Mario* offer some truly innovative gameplay mechanics, *Crash*, for all its 3D trickery and 32-bit sheen, is still firmly rooted in the land of the traditional left-to-right platformer. You might be able to make the little orange critter run into and out of the screen with light-sourced polygon scenery impressively shifting all around him but a moving platform to leap to, an enemy to avoid and a bonus crate to jump upon are not the ingredients of innovation the title initially seems to promise.

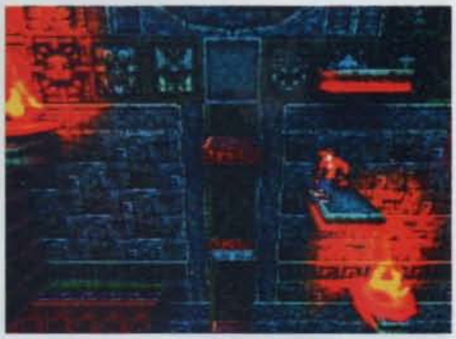
Set over 32 levels the usual tiresome mad scientist/world domination plot sets the genetically altered, nasally-enhanced marsupial the task of negotiating three islands and removing five bosses before he gets to take on his twisted creator - the evil Dr. Cortex - in his lab. Gameplay is split into three distinct styles. Running into and out of the screen are the most innovative and afford *Crash* its most distinctive feature. The more traditional side-on sections make far less use of the 3D effect. There are some levels that combine all three formats. Whilst



The lovely 3D maps would seem even lovelier if you didn't have to wait for them to load in every time

Format:	PlayStation
Publisher:	SCE
Developer:	Naughty Dog
Price:	£45
Release:	Out now





***Crash* sports what must surely be the most intricate texture maps yet seen in a PlayStation game. When these are combined with the sort of lighting effects seen in *Loaded* and *Tunnel B1*, the result is stunning**







The frustration can be high. Losing a life restarts you at a check point but restarting a whole game can mean retracing through three or more levels

there is a modicum of three-dimensional freedom within each level this is strictly a linear trip. The game gives you no option but to follow the predestined course. No real multiple routes or exits mean this is definitely no *Mario* or *Yoshi's Island* and with every enemy and crate in exactly the same place every time, it's easy to find yourself slipping into a formulaic playing pattern. Learning by repetition is something that afflicts all but the best platformers, regardless of their host system, but *Crash's* sometimes unforgiving gameplay and rather meagre collection of level inhabitants tends to accentuate the 'die once – learn the pattern' blight even more than usual. Attempts to break up the gameplay such as the obligatory mine-cart ride, a breakneck race on a hog's back and avoiding being crushed by a Indiana Jones-style boulder are welcome additions and help *Crash* avoid the copycat level trap. In the main, however, you'll be utilising his armoury of dodging, jumping and spinning (*Crash's* Taz-manian style of dispatching enemies and opening bonus boxes) on the last level in exactly the same manner as you did on the first.

Admirably, Naughty Dog has made a real effort to lengthen *Crash's* lifespan. Apart from a fairly harsh learning curve, there are keys to open up previously inaccessible levels and gems that, when activated (much like *Mario's* switch boxes), make available new routes through the course. These encourage you to either invest time hanging around searching every nook and cranny or make you return at a later date to try for a perfect score (duly rewarded by a special end sequence). Unlike nearly every Japanese game in recent times, *Crash* is also rather frugal with its save points and passwords. It only awards them after successful completion of a bonus round, entrance to which is only possible after discovering the three bonus tokens hidden within a level. Making the going this tough is a refreshing change but can, inevitably, lead to frustration. It's quite possible to either miss or fail to complete a bonus level only to continue on for quite a while before coming up against a particularly sticky boss or situation and prematurely ending the game. Missing the bonus means you'll have to restart at a previous save and subsequently find yourself retracing maybe four or five levels.

This leaves only the look of the game to rescue what is looking like little more than an average platformer with an added 3D twist. It's just as well then that graphically there's little to touch *Crash Bandicoot* on the PlayStation currently. The attention





Crash's **side-on scrolling graphics fail to match Clockwork Knights'**



In a true Mario-style, *Crash* can jump on the heads of enemies to dispose of them but a far more effective weapon is a Taz-like spin attack





Moving in and out of the screen is *Crash Bandicoot's* most innovative feature although it can sometimes be hard to judge distances. The foggy bridge levels are particularly hard.

Continued next page

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Such are the quality of *Crash Bandicoot's* graphics that rather than waste space on FMV intermissions it actually uses in-game graphics for intro and cut scenes

to detail on the texture mapping is nothing short of astonishing. Intricately carved Aztec stonework scenes delicately lit by flickering torches vie with spectacular purple-skied vistas and lush dense jungles as the most spectacular backdrops yet seen in a video game while special effects such as a raging thunderstorm, a

> a stunning rope bridge to nowhere and superbly realistic water which supposedly had shigeru miyamoto cadging for programming tips are the icing on an impressive cake

stunning fog-bound rope bridge to nowhere and superbly realistic water (which supposedly had Shigeru Miyamoto cadging programming tips) are merely the icing on a very impressive cake. *Crash* himself is a solid enough creation (although the cartoonists list of obscure animals for characterisation must surely be thinning dramatically by now) but like so many of his western-born predecessors (Bubsy the Bobcat, Gex) he lacks any real charisma. Not surprising when the design team, for all their Hollywood animation experience, can only muster such lacklustre credits as He-Man - Masters of the Universe and Family Dog. Naughty Dog's claim that the whole game harks back to classic 40's and 50's Warner Bros does *Crash Bandicoot* no service at all as the rich and superbly coloured scenery lends the game a character all its own. Even the quirky soundtrack, a bizarre mixture of native drumming, whoops and weird electronics, courtesy of Mark Mothersbaugh (from 80's American spud-punk band Devo) helps make *Crash* look and sound unlike any other next-generation game around.

In the end it's churlish to snipe at and criticise *Crash Bandicoot* just because it tries to update an old genre rather than trying anything new. That was, after all, Naughty Dog's intention in the first place. But the only thing it really succeeds in updating is the surface gloss. Once you're past the admittedly amazing graphics, the gameplay can only really be described as 'uneventful' and there isn't one revolutionary platforming idea on the whole CD. In terms of imagination it may see off the likes of 32bit-powered *Rayman* and *Johnny Bazookatone* but gets a good quick toecap to the sphincter from many of its classic 16-bit cousins. True enjoyment of *Crash Bandicoot* relies on an appreciation of the talents of Naughty Dog's programmers and artists, not the challenge and interaction they've provided to the gamester. However, like *Donkey Kong Country* on the Super Nintendo, that would still seem enough to guarantee its huge success. E

Edge rating:

Seven out of ten



Don't miss out on the bonus levels, they're the only place you can save



The breakneck hogback-riding section is definitely where you'll learn by your mistakes

WaveRace 64



Just when things were looking dark for Nintendo, Miyamoto works his singular magic and helps create a racing game to shame the company's less skilled rivals. Astounding water effects, breathtaking stunts and that famous Nintendo playability



The single-player mode pits you against three other racers and a well-timed boost of acceleration is needed to get ahead of the pack in these crucial, early seconds



Stunning graphics alone mark *WaveRace 64* out as a modern classic. Peripheral touches like the incredible bankside reflections (above) add truly unpresidented depth and reality to the environments

Owners of imported Nintendo 64s have had a long, long wait since the release of the machine back at the end of June. They may have invested in the world's most controversial videogames system – but they've only had four games available (and that's even if you take into consideration a dodgy Japanese chess and ported PC puzzler *Endorfun*, retitled *Cu On Pa*). Carts may be thin on the ground but N64 owners have been taking solace from the ranks of potential classics being assembled in the Kyoto firm's headquarters. If all the new games are all of the calibre of *WaveRace 64* the wait will have been more than worth it.

As with *Mario* and *PilotWings*, there's something distinctively Nintendo about *WaveRace*. Most noticeable from the start-up sequence is that all the pre-rendered trimmings of most 32bit titles are absent. Nintendo's programmers, under the direction of Shigeru Miyamoto, have managed to create a functional but effective front-end in realtime with only eight megabytes of ROM. The *WaveRace* player is treated to a stunning flyby of one of the game's circuits just as it appears in the game proper. Set against a backdrop of cheesy *PilotWings*-style muzak, it's a typically polished, and yet restrained, scene-setting style, that one would only expect of Nintendo.

As the player skips through the multi-layered options screen and into the game itself, what gradually makes itself clear is that *WaveRace* has something that no other game has yet managed – thoroughly realistic water. It ripples gently in the background as the players' scores are displayed, it bobs the gloriously detailed jetskis up and down as the game camera swoops in at the start of a race, and best of all, it rolls, swirls and cascades magnificently around the screen to create the most believable watery environment yet seen in a videogame.

In some respects, *WaveRace* is close in look and feel to another NCL classic, the Super FX-powered SNES title, *Stunt Race FX* (aka *Wild Trax*, **E11**). This time however, instead of dinky off-road vehicles careering around the tracks, the rather more convincing designs and dynamics of the 'Kawasaki' jetskis make for a slightly more serious, although no less enjoyable gaming experience. Similarly, while the Super FX-assisted SNES classic had trouble when it came to generating two independent screens at once, its 64bit big brother has no such technical hangups. Splitscreen, two-player *WaveRace* is about as fun as videogaming gets.

At a first glance though, and in a similar way to *PilotWings*, Nintendo's latest might disappoint those looking for state-of-the-art, arcade-style thrills. It's evident that the majority of the machine's polygon



Format:	Nintendo 64
Publisher:	Nintendo
Developer:	In-house
Price:	¥9,800 (£60)
Release:	Out now (Japan)

Courses






The game begins with basic courses (far left, centre left) allowing the player to build up some skill. Later cicuits include islands which can be hopped over (centre right) and shortcuts which lead to disaster if mistimed. This harbour wall (far right) can be jumped if timed correctly






It is tempting to zoom down tunnels (far left), but this one ends in a wrenchingly tight corner. The neon-drenched city circuit (centre left) is full of great jumps, whereas the ice course (centre right) is full of penguins. This boat (far right) provides a hair-raising obstacle on the game's final track

horsepower has been put to use in modelling those authentic waves. This means the amount of superfluous scenery is kept well in check to keep the frame rate high. This stays at well over 20fps but rarely reaches the current 30fps benchmark of most next generation arcade games. None of this detracts, however, from the sheer variety and diversity of the action in *WaveRace*, which far exceeds that in most 32bit arcade titles. Instead of overloading the game with gratuitously lavish landscapes, Nintendo has used its 64bit hardware to create a different gameplay experience for the player... and that's to be applauded.

Having said that, there are some pretty memorable graphical moments that will impress even the most nit-picky. One course, on a calm lake, starts off immersed in thick mist that gradually clears to reveal an impressive depth of vision and some lifelike reflections at the water's edge. Another, beside a sunny beach, permits the player to see right through the transparent water to reveal a textured seabed with polygon fish darting around. Subtle touches like these heighten the player's immersion substantially.

Considering that *WaveRace* offers a straight championship with three difficulty levels, a selection of stunt courses and a splitscreen, two-player mode, it certainly doesn't lack variety. The only real criticism could be levelled at the relative lack of tracks. This means that most could easily be seen within a day's play. Even these, however, eclipse the paltry number of courses included in most arcade racing game



The four craft have adjustable stats so performance can be modified







The stunt course allows players to perform an array of outlandish moves



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continued











Racing requires a constant awareness of tide and surroundings. Opponents also have to be watched for, especially in the frantic and highly competitive two-player mode (top right)



conversions. In addition, *WaveRace* is structured so that, as the player completes the normal, hard and expert settings (each with their own initial group of tracks) additional tracks are thrown in as an added incentive to keep going.

A constant factor through all the game modes is the sheer satisfaction of using the controls. In true Nintendo tradition, and making good use of the N64's analogue joypad stick, controlling the jetskis as they skim across the water does take quite a bit of getting used to. However, once this is mastered (within a few goes), players will find the controls have an intuitive simplicity rarely found in videogames.

More satisfaction comes from the fact that each of the four jetskis possesses markedly different handling characteristics. This is accentuated by the way the craft interact with the water and are correspondingly thrown around by the waves. It's possible to surf across the waves to gain added momentum and skis can also jump skywards before diving underwater to clear obstructing scenery. In fact, everything that you'd expect to be possible in jetskiing is here - *WaveRace* feels exactly right, and that's by far its strongest card.

For all its advances in technology and showmanship, *WaveRace* is a perfect example of how Nintendo's approach to game design still remains markedly different from almost every other videogames company in the world. It also serves as a reminder of how little its own design ethics have changed over the years. Sure, it's fast, powerful, good looking and pretty much state-of-the-art in most respects - but what matters most is that it's exceptional fun. And that's what really counts.

Edge rating:

Nine out of ten











Typically for a Nintendo game, *WaveRace 64* is simply filled with marvellous collateral detail. Lens flare saturates the screen when you race into the sun (left) and a detailed helicopter often swoops over the action (bottom right)

Soviet Strike

EA proves there's life in the old dog yet by resuscitating its popular *Strike* series for a fourth outing. This time the backdrop is Russia and the landscapes have received a lavish 32bit makeover – a logical progression for the tactical shoot 'em up







***Soviet Strike* features wonderful, detailed, realistic scenery streamed off CD. A welcome change from the blocky isometric landscapes which characterised the first *Strike* titles**



Players view the game from above and behind the Apache 'copter

Format:	PlayStation
Publisher:	Electronic Arts
Developer:	EA Studios
Price:	£40
Release:	Nov 7

Electronic Arts' Mega Drive hit *Desert Strike* rode the militaristic hype that accompanied the Gulf War and delivered a mould-breaking tactical shoot 'em up. It cast you as the lone American pilot up against the outlaw regime of a particularly despicable dictator, destroying installations, taking out enemy hardware and rescuing grateful MIAs and POWs. As with most other EA games, *Desert Strike* had both TV-style presentation – this time of the CNN variety – and a tendency to be sequelled. *Jungle Strike* transferred the action to central America, and *Urban Strike* was set in a war-torn USA: both expanded the scope of the first game.

On the surface, *Soviet Strike* would seem to have most of the same features as its predecessors – an isometric 3D view of the battlefield, campaigns broken down into missions spread across the same battlefield, supplies dotted across the map and a 'What if...?' scenario inspired by contemporary politics. This time it's the former Soviet Union that's under threat from a bunch of old Communists led by a powerful ex-Soviet general and the game's five campaigns – Crimea, Khyber, Black Sea, Dracula and Kremlin – are set across the old Soviet empire.

On starting a campaign, the first major difference veterans of the previous *Strikes* will notice is that the landscape moves. The default view is a chase cam behind the Apache and as it turns, the ground rotates underneath – an advanced alternative to the 'locked' view of the other Strike games where the terrain merely scrolls. Landscapes are also beautifully detailed ranging from the snowy wastelands of Crimea to the grandiose architecture of central Moscow.

Campaigns are similarly varied. For instance, in the opening Crimea campaign there are seven different objectives. First, two early warning radar dishes must be destroyed, then a group of captured intelligence agents must be freed. Next, a temporary airbase must be annihilated, two POW camps liberated and an enemy HQ must be wiped out and its commanders taken alive. Finally, a terrorist training camp has to be destroyed and you must deposit a spy near to an enemy officer's villa.

On the face of it, this would seem to be a standard blastfest with the odd bit of rescuing thrown in to occasionally calm things down, but nothing could be further from the truth. It's perfectly possible to cruise the battlefield blowing away whatever enemy targets come your way, but you'll never finish the game if you do. It's only after a few attempts at the first campaign that it becomes clear that *Soviet Strike*, like the previous *Strike* games, is very tightly structured.

Each campaign map has only a limited number of extra fuel and ammo pods which force you to fly economically – shooting only what you have to and not going for a refill until you've exhausted what supplies you do have. Whilst this adds a great deal of depth to what would otherwise be simple gunplay, it does feel



Extra fuel can be taken onboard at helipads sparsely dotted about the playing area. Do not waste a drop



Sneaking up behind targets and taking them out quickly saves valuable ammo and allows the player to avoid messy confrontations with enemy tanks and gun-posts

at times as if there's only one way to play each mission.

However, the intelligence of the enemy does counter this to some extent. Knocking out key installations (radars, power plants) first lowers the 'Alert Zone' of the area so less tanks will turn up to see what all those explosions are. You can also sneak up on gun turrets and tanks from behind and wipe them out before they get a chance to react. It's far better and, curiously, more satisfying to play this hit 'n' run game, although the responses of the enemy (and your ever-diminishing fuel) force you to take risks.

The Russia-in-peril scenario does dish up a good selection of campaigns with intriguing mission objectives. Attacking ships, aircraft carriers, retrieving

soviet strikes tough mission structure rewards diligent gameplay and makes this shoot em up much more of a challenge than those efforts that simply dole out continues

ICBMs, even saving Boris Yeltsin. Some of the more ingenious tasks you'll have to figure out include starting an avalanche to crush a tank battalion and sealing a nuclear reactor core in a salt mine.

It's this inventiveness that makes *Soviet Strike* – without it, it would be a fairly unspectacular and ungainly shoot 'em up. The controls of the chopper take a while to get used to, as do the targeting foibles of each of the four weapons, but at least the chopper doesn't bump into buildings as it did in earlier *Strikes*.

One further refinement worth mentioning is all the FMV that now adorns the game. It's more of an intrusion than an improvement though, looking like a particularly over-the-top Fugees video.

Basically though, this is a fairly well-engineered continuation of the four-year-old *Strike* series. It hardly expands on the scope of the original but shrewdly replaces the old isometric graphics with true 3D, retaining all the elements that have made the series such a resounding success. Importantly, *Soviet Strike*'s tough mission structure rewards diligent gameplay and makes this shoot 'em up much more of a challenge than those pale efforts that simply dole out continues by the bucketfull.

Edge rating:

Seven out of ten





The mission map (above) shows the player's whereabouts as well as the positions on any enemy craft in the area. This has to be regularly consulted to avoid getting lost







Missions are varied and require a certain amount of tactical ability. For example, when attacking enemy ground vehicles (above) or bases (right) a close eye must be kept on ammo and fuel levels

World Wide Soccer '97

It's the elusive mix of playablility and realism that makes a football simulation standout from the crowd. *World Wide Soccer* may just have discovered the secret. A 32bit soccer benchmark without a flashy licence? Stranger things have happened...



The game camera pans in to make the set-piece moves slightly easier

It is very rare that you can judge the quality of a football game at first glance: they hardly ever look absolutely terrible or absolutely stunning. It is the subtleties which separate them and

a referee will sometimes completely miss offside rulings or turn away jut as a player performs a vinnie jones style killer tackle

it is the subtleties of *World Wide Soccer* which place it amongst the premier footy sims, rather than leave it floundering in some soccer game no-man's land.

First of all, no generic feature has been left out. There are several game options to choose from (tournament, league, cup, exhibition), you can select from a full range of team set-ups and formations, and there's a list of broad tactics (offensive/defensive/counter attack, etc) which can be changed in pause mode to craft the play. There is even an inspired coaching system which employs the X, Y, and Z keys. These allow the player to pull the offside trap or change marking tactics actually within play - a great feature for the more strategic player.

Another neat touch is the fact that the team member on the ball can be made to sprint for a limited time with a touch of the left shoulder button. Usually, only those chasing the ball get the sprint option. This tiny feature adds so much to the game, making quick, unexpected breaks much more of a possibility. The introduction of computer player fallibility is also welcome. The goalkeepers occasionally turn dodgy, fumbling the ball or punching at it wildly and a referee will sometimes completely miss offside rulings or turn away just as a player performs a Vinnie Jones-style killer tackle on some unsuspecting midfielder. This adds a little uncertainty to the game, which in turn accentuates the reality.

Graphically, *World Wide Soccer* initially fails to impress because both the players and pitch look a little jagged and ill-defined at times. However, the smooth animation slowly makes itself clear as you become a better player: back passes, overhead kicks, headers and volleys all look totally believable and fluid. The animation also allows moves like the shoulder barge and sliding tackle to be carried out from a number of different angles. This means that the game never looks too rigid or formulated.

In terms of play, 'intuitive' is a good word to





***World Wide Soccer* is full of great animation sequences which instill the game with a certain amount of realism. However, some features don't quite fit in. For example, the game radar (right) is useful, but who wants a radar in football?**

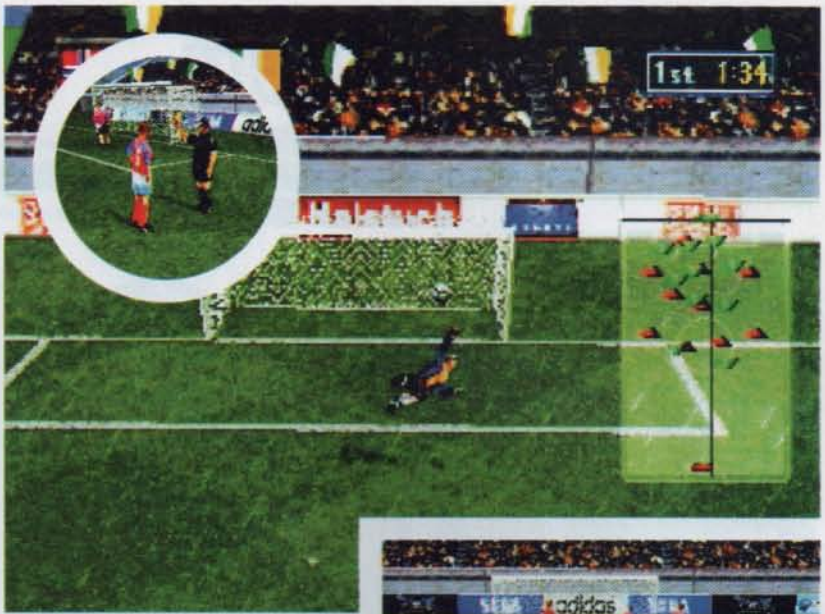
Format:	Saturn
Publisher:	Sega
Developer:	In-house
Price:	£45
Release:	17th Oct







Three camera heights are available. Close (centre) looks good, but medium (above) is best







The rules of football are followed to the book. Players can be deemed offside, and savage tackles can result in penalties and sendings off. The penalty screen is reasonably authentic

smooth player animation slowly makes itself clear back passes overhead kicks headers and volleys all look totally believable and fluid

describe the game as a whole. There is none of *Actua Soccer's* bluffing, double bluffing and disguising passes but the basic three types of kick (shoot, pass and lob on the A, B and C buttons respectively) can be adapted if the player so wishes. For example, a full-blooded lob can become a more delicate chip with a quick double press and similarly a shot can be driven along the ground instead of launched skywards with a similar technique.

As usual with soccer games, it can be very hard to place a ball in the net exactly where you want it. More often than not, shots executed with the A button will fly straight into the centre of the goalmouth and inevitably right into the goalie's grasp. However, this just forces you to be more creative, using chips and passes to fool the goalie instead of just straight shots.

There are a couple of problems with *World Wide Soccer*, though. The commentary (which is supplied by Gary Bloom of TV's Football Italia fame) is frankly pretty dire and often bludgeons you over and over again with the same inane phrases.

The computer-controlled players are not half as intelligent as they could be. It rarely seems that they're really trying to create any chances or that they're responding well to the chances you set up. They will, however, follow a quick break up field, especially if you have selected the offensive team tactic. At least, then, there will be someone up there to pass to after a flat-out run down the left wing.

Ultimately, this is a well-produced and thoroughly entertaining football simulation, which combines very easy-to-learn controls with hidden depths and a certain amount of realism. Most aspects of the game are customisable (even the players' names - much hilarity will no doubt ensue from this feature). This means it's possible to enjoy anything from a playful kick-about to a strategic game of chess-like proportions, depending on the player's mood. Despite the quality of the competition, *World Wide Soccer* easily fulfils what is expected of a football game and adds a few of its own features on top. It's a consummate football simulation.

Edge rating:

Eight out of ten



The comprehensive menu screen allows players to change their general tactics and team formations

Supersonic Racers

The creators of Mega Drive *Micro Machines 2* bring their own brand of crazed, Wacky Races-style driving to the PlayStation in this cartoony SNES-style romp. Kiddy graphics? Tiny cars? It's like the next generation never happened







Everything in *Supersonic Racers* is daubed in cartoony primary colours, giving the game a toytown look and feel The simple cars and circuits are rather SNES-like. It certainly makes a change from the first person 3D racers which dominate on the PlayStation



The game's wacky cars and almost table-top like circuits are very reminiscent of *Micro Machines*

Format:	PlayStation
Publisher:	Mindscape
Developer:	Supersonic Software
Price:	£45
Release:	Late October

After a spate of sims and arcade conversions, it was inevitable that the comedy racing game would, once again, rear its wacky head. *Micro Machines 3* and *Mario Kart* are both on the way, but ahead of them is this sneaky little underdog.

Supersonic Racers is by the makers of *Micro Machines 2* (on the Mega Drive) and it shows. Cartoon characters, ridiculous vehicles and bizarre tracks all appear in both titles. Furthermore, *Supersonic* eschews the first person 3D of *Daytona* et al. Instead there's an isometric view (or above and behind if you prefer) giving the *Supersonic Racers* a less serious and less realistic look.

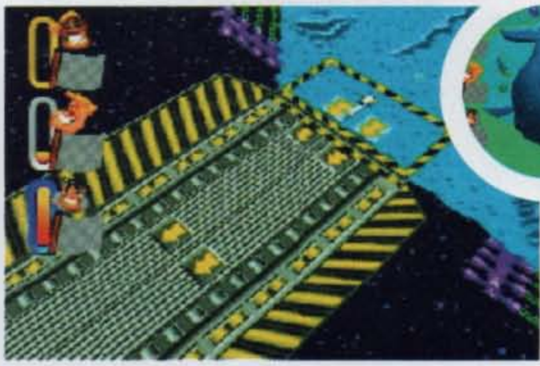
Considering all those *Micro Machines* comparisons, playing *Supersonic Racers* ought to be great fun. The tracks are full of neat scenic touches and the circuits have plenty of tricks in store (like jumps, tunnels, and ditches). There is also a great multiplayer option which allows eight participants: a brilliant laugh. Once you get the hang of the vehicles' rotational handling, racing becomes amusing and challenging.

However, the problem is the camera view which sticks too close to the cars. This makes it hard to anticipate what is coming up and forces the player to learn tracks off by heart - expected in an F1 sim but dull in a 'crazy free-for-all'. The camera does zoom out at times (mostly in multiplayer mode so that all cars remain on screen) but this can be disorientating.

Nevertheless, *Supersonic Racers* is an enjoyable, well presented romp with much to recommend it - even if its cute cars and simple, colourful graphics will probably smack a little too uncomfortably of 16bit for true next generation disciples. **E**

Edge rating:

Seven out of ten





There are ten very different themed locations in the game, each with three circuits. Players can end up driving anything from airships to drag racers

Burning Road

Take the rough and tumble of *Daytona*, mix it with the slick design principles of *Ridge Racer* and you should end up with the perfect racing game. *Burning Road* fails to prove this hypothesis



Burning Road **is certainly fast and smooth and does boast a few nice touches: the semi-submerged sections of track (above) and the sweeping rain (right) give the game a little of its own visual and gameplay identity**



The layout and the helicopter flying overhead owe much to *Ridge Racer*. There are ideas from *Daytona*, too

From the first play, it's clear what French developers Toka drew on for inspiration when designing *Burning Road*. It has the rough and tumble of *Daytona*: cars, or at least their tires, crumple if they take knocks, and heavy contact with the barrier results in a spectacular rollovers. It uses some of *Ridge Racer*'s features: cars can be slung round corners and powered out, helicopters and planes swoop over the tracks, etc. And there's even a swinging charm dangling from the rearview mirror – a neat feature purloined from Sega's *Rad Mobile* (where it was a swinging Sonic) to convey in-car motion.

However, *Burning Road* fails to capture the finesse that made the thoroughbreds it aspires to stand out. First, it lacks the control experience – the twitchy, edgy feel of a car at the limit of its grip that is now essential. Instead, it feels like an old 16bit title as the vehicles – a mixture of cars and trucks – glide across the track with little realism in the dynamics. Also, the opposing cars bunch together badly so that for the bulk of any race you will be at the back of this compressed field or the front. This bunching also means that the slightest error on your part – straying on to the grass at the edge of the track, for instance – will see the rest of the cars stream past you. The major test is not really in racing in the other cars but in making the checkpoints and finishing in a time low enough to qualify for the next circuit.

The circuits themselves are a none-too-special selection, with a rural track, a snowbound mountain one and a bleak, rainswept urban one. But pleasing snow and rain can't rescue circuits which are largely an unimaginative set of textures and themed features which do nothing to enhance the disappointing racing. *Burning Road* is simply a basic driving game which, despite some good touches, lacks the sophistication or ambition shown consistently in Sega and Namco titles. As such, it can't hope to catch them.



Edge rating:

Five out of ten



There are three circuits, or six if you count the mirror versions also included in the game

Format:	PlayStation
Publisher:	Funsoft
Developer:	Toka
Price:	£45
Release:	November

A meeting point for media capitalising on the digital entertainment revolution

nuMedia

in association with ocean

As videogames become more advanced, the technology designed to supplement them obviously advances too. This month, nuMedia looks at a strange joystick developed specifically for first person shoot 'em ups and a graphics card which comes with a VR headset. Is the race to provide truly immersive worlds is well and truly o, or are these just tawdry cash-ins? Meanwhile, after last month's music feature, an influx of 'make your own music' CD-ROMs proves how important the aural element is becoming. In every area, computer users are being encouraged to create instead of mindlessly consume. nuMedia also looks at a new digital camera which can be operated via a PC or Mac. You can even use it to film while you're not in the room. Security cameras on every high street and now this? Big Brother is just around the corner...

Gadgets

SpaceOrb 360

Manufacturer: Spacetec IMC
Release: November
Price: circa £100

There was a time, believe it or not, when games required just a simple joystick with one fire button. Yes, it seems charmingly naive now. That was before *Street Fighter II* and the rest came along to demand multiple fire buttons.

Now titles like *Quake* require even more elaborate control mechanisms in their ongoing efforts to create true-to-life experiences and 'true' 3D worlds. The problem is, standard joysticks only operate on a 2D, X-Y axis. They cannot cope with the demands of complex first-person 3D environments. SpaceTek though, thinks it now has the answer.



The Space Orb is a very strange looking device which claims to give the user multi-axis, full 360-degree control over the game character. With light touches and twists, the player can move in any direction, even strafe, jump and duck, without having to employ the keyboard. SpaceTek also suggests that, with a little practice, players will be able to put together their own combos.

Moves such as the circle strafe (encircling an enemy while keeping them in your sights) and something which the company's press release refers to as 'the indefensible death blossom' will all become possible. (Incidentally, SpaceTek fails to point out what an 'indefensible death blossom' is but it sounds unpleasant).

The joystick also boasts 10bit digital precision, allowing the player to vary the speed at which his character is moving simply by varying the amount of force applied to the power sensor (i.e. the slightly-larger-than-golf-ball-sized globe which acts as the stick).

Space Orb comes with software which makes it compatible with games such as *Descent (1 and 2)*, *Doom* and *Duke Nukem*.

Furthermore, new titles are apparently being added to the compatibility list on a regular basis.

Judging by the look of the device though, **Edge** isn't sure whether you should ask for it in Electronic Boutique or Ann Summers.

SpaceOrb 360 Contact UK Distributer, Contemporary Games PLC, Tel 01454 855050

Gear

Organic Art Clothing

- Computer Artworks and Daniel Pool
- Email: info@artworks.co.uk or fax 0171 828 6997
- Daniel Pool Retail, tel 0171 287 0666
- T-shirt £24.00, V-neck T-shirt £25.00

Cyber artist William Latham, co-author of the innovative PC design package Organic Art (E34), is well known for his excursions into mutating, fractal computer art.. Now though, he's expanding the organic concept into the world of clothing fashion. Through his company Computer Artworks, Latham is releasing a range of clothing and accessories displaying the weird computer-generated designs which have made him famous.

The project is actually a collaboration with world renowned clothes designer Daniel Poole who became aware of Latham's work after designing clothes for staff at the Shamen's club, The End. Latham has also worked with the Shamen and, through this mutual acquaintance, the two discovered they were admirers of each other's work. The clothing, which will range from T-shirts to, wait for it, Hawaiian shirts ('very popular with the Americans' assures Latham) will be launched officially in the Spring but some will be available in time for Christmas '96.

Speaking to **Edge** recently, Latham revealed that the new cyber fashion is only part of his plans for Computer Artworks: 'We're being very careful what we do with organic art. There is an overall strategy. What's interesting is taking the organic theme and applying it in different areas'. Computers are not being left behind in the rush to expand the cyber art business. As well as branching out into new realms, Latham has also updated the *Organic Art* package and a new designer version is available from his company's website (www.artworks.co.uk).

Back to the new clothing itself, Latham argues that it won't appeal just to computer users. 'The images that our software creates often don't look computer-generated at all. It's sort of techno Laura Ashley,' he says. Only an artist of Latham's credentials could make that sound appealing.







miroMEDIA 3D card



Manufacturer: miro
Release: November
Price: £225 (bundled with 3D glasses and Dolby sound card)

The PC market is currently awash with 3D accelerator cards. Veteran multimedia company miro has added a few innovative touches to its own new graphics board, the miroMEDIA 3D, in the hope that it will help it stand out from the regular competition.

The basic card is designed around S3's ViRGE graphics controller chip (see news, E33) which is capable of all the usual effects the PC consumer has come to expect: alpha blending, fogging, z-buffering, Mip Mapping, Gouraud shading, etc. Additionally, the card has the standard 2Mb of RAM and can also be used to playback video CDs.

On top of this though there are a few new touches. The card itself, for example, has a TV output socket in the rear, so you can play games on a large screen instead of a monitor. Micro also provides some anti-flicker software to ensure that the TV's lower-res image won't ruin the gaming experience.

Packaged with the board are two subsidiary products: a pair of VR glasses and a Dolby Surround Sound upgrade card. The glasses allow the user to 'visualise games in 3D' as a result of the in-built monitor displaying two different images. According to miro's press release, the card controls the liquid crystal lenses so that they switch between clear and opaque at a refresh rate of 120Hz, therefore simulating a single, three dimensional image. Hopefully it won't also simulate an agonising migraine as VR glasses are wont to do.

The Dolby Pro Logic upgrade card works in conjunction with your current soundcard (ie it is not a self-contained device - it merely slots in beside the one in your machine) to provide surround sound. If you only have two speakers it creates a kind of fake surround effect but the card can send sound information out to as many as five speakers - generating true aural immersion.

The entire miroMEDIA 3D package costs £225 but miro says it is also releasing a cheaper version (£199) without the Dolby card. E

miroMEDIA 3D card • Contact tel 01494 510250

Connectix Colour Quickcam

Manufacturer: Connectix
Release: Out now
Format: PC and Mac
Price: £199

It looks like an evil little computer eye - something you may see in some cheap sci-fi film glaring at the hapless star as he walks past an enemy terminal. However, the Quickcam is actually a 24bit colour digital camera which plugs straight into your PC parallel port without the need for expensive additional hardware.

The device comes with three applications: QuickPICT for taking still 640x480 photo images, Quick Movie for recording colour digital video movies and Microsoft Video to allow the footage to run in Windows (obviously, the bigger the window, the slower the frame rate).

Connectix, which brought out a black and white version of the camera a year ago, maintains that there are literally thousands of uses for it. For example, still images and moving films recorded using the device, can both be put on Web pages - you can even display footage over the net live (ie while you are recording it). The implications for tastelessness and large scale debauchery are fantastically beyond the realms of decent comprehension. There is also an interesting Auto Capture feature which allows pictures on the Web to be automatically updated.

The Connectix press release points out that Auto Capture can be set up to take pictures only at certain times of the day or week. A great way of finding out exactly what goes on in a room when you're not there (come on, use your imagination)...

Collateral features like manual focus, new video compression technology and the availability of video conferencing software (not included with the camera) make this an even more intriguing gadget. This is one for home video enthusiasts, Web page editors or, let's face it, sneaky underhand spies everywhere. E



Quickcam • Contact tel 0171 622 3355

Films

The City of Lost Children

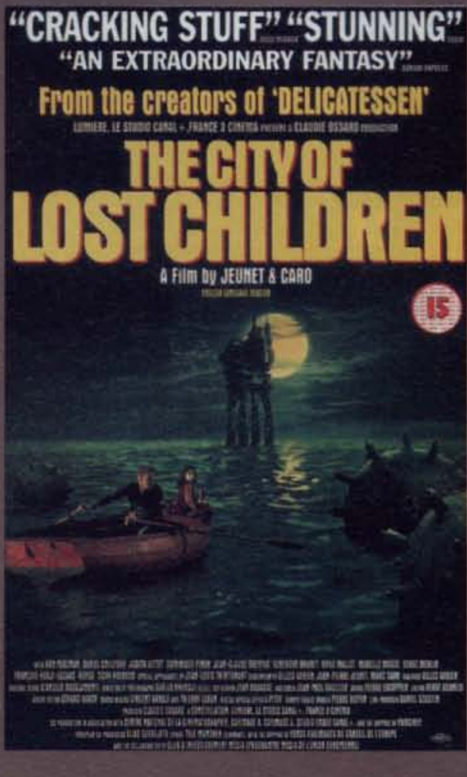
- Directed by Marc Caro and Jean-Pierre Jeunet
- Entertainment in Video
- Cert 15
- Out now

Coming three years after their stunning debut film, Delicatessen, French film-makers Jeunet and Caro's second feature (which is soon to be converted into a video game by Psygnosis - E35) is a beautifully mounted, dazzlingly imaginative fairy tale. Marc Caro's art direction is a breathtaking advance on Delicatessen's post-apocalypse tenement building. The heavy blend of steam age science and Gothic revival architecture is photographed in rich golds and greens adding to the film's feel. Costumes by Jean-Paul Gaultier and music by Angelo Baddalamenti complement and complete the texture of this unique piece of cinema.

The story puts One - a circus strongman played by the hulking Ron Perlman - together with a typically spunky jeune fille, Miette, in a quest to find One's kidnapped brother. The boy's captor, Kronk, is an evil inventor who has lost the power to dream and consequently kidnaps children to steal theirs. Kronk and his entourage - a talking brain in a water tank, a set of clones all claiming to be the 'original' and a dwarf - all live on an oil rig-like platform and his kidnapping is done by the men machines of the Brotherhood of the Third Eye.

Back in the city that's losing its children, Miette and One's efforts are under threat from the maniacal Octopus twins and an opium-addicted flea circus owner who hires out his microscopic minions as assasins. Helping out the two heroes are Miette's street urchin friends who, along with Kronk's efforts to befriend his kidnappees, provide the comic relief.

Jean-Pierre Jeunet's expressionistic direction creates a strong, sinister atmosphere but the pair's black humour never lets the film descend into anything as boring straight horror or thrills. Standout sequences include the



opening dream where Kronk appears as two dozen creepy Father Christmases, the amazing CGI of the flea assassins leaping onto their targets and the (literally) side splitting demise of the Octopus twins.

As heirs to Terry Gilliam's (and compatriot George Méliès') style of 'cinema of the fantastic', Jeunet and Caro have created one of the most inventive and extraordinary films of recent years. Do not, however, view this film in its dubbed, panned and scanned version, it takes away too much of the original. Even the slightly more authentic widescreen, subtitled version is a bit of a disappointment - you really need the big screen to enter into the film's world. Therefore, it's best to sit close to that big telly and turn the lights off. E

Continued next page

nuview

continued

Music

Advanced Technology
Emporium
K Recordings



Drugs taking their lives away. One sample repeated over a skittish drum line and spooky synth noises. Who would have thought it could turn Narcotic Influence into a classic techno single? But it did – and the rest of this album always had a lot to live up to. It almost succeeds: Jesus Christ is a crazed rush and Ciao is pure malevolence. But nothing matches the impact of that sample, both slyly celebrating and casually deriding club culture. Quite an achievement in only seven syllables.

Flavour7: Globetrotters
Various
Parlophone



Compilations which seek to cover the whole output of a record label are often dodgy, especially when the range of artists is as diverse as this. The new Parlophone sampler does have moments of excellence – Mansun's superior Brit-popper Stripper Vicar stomps and slithers with much energy and invention, and Mazzy Star do their ethereal guitar thing beautifully on Flowers in December. But Tina Turner and Joe Cocker? What the hell have we done to deserve them?

Muzik Masters
Various
DeConstruction/Cream



With their latest 3xCD, Roger Sanchez, Dave Clarke and Fabio consolidate their reputation as the leading lights of DJ mix sets. Less ambitious than Live 2, this is an inspiring collection, focusing on house, techno and drum'n'bass crowd-pleasers. Clarke opts for a soft-edged line-up and Fabio is also accessible, with otherworldly drum & bass dominating. But it's Sanchez that really shines, bringing mainstream and underground together for an expertly paced set. Essential.

Prince Blimey
Red Snapper
Warp



While the idea of dance music created by a real drummer, saxophones, double bass and guitars conjures images of Jamiroquai, 'Prince Blimey' is, in fact, a thrilling mix of jungle, techno, and trip-hop atmospheres. Cop show jazz-funk, languid hip hop, John Barry scores and a hundred other influences all pervade. And yet Red Snapper retain a sparse, tense feel throughout. 'Prince Blimey', then, is the sound of Orbital reinvented as a smokey, bluesey club band.

Secret Black Technology
Guy Called Gerald
Juicebox Records



A Guy Called Gerald's Black Secret Technology album, subject to poor distribution in '95, has been re-released, with new packaging and two new tracks – Touch Me, which simply begs for a single release, and a reworked version of the track So Many Dreams. The original was among the top three drum & bass albums of all time and the re-release is even better. Black Secret Technology's lush, three-dimensional, melody-strewn sound is blissful.

Northern Exposure
Sasha and John Digweed
Ministry of Sound



Is Sasha and John Digweed's Northern Exposure music for frenzied club bimbos? Obviously not, judging by this 2xCD compilation. The first is a mix of mellow, epic tunes – many old classics, even some progressive house. The perfect soundtrack for cocktail-sipping on some Mediterranean verandah. CD2 eschews cheese in favour of a mellow, trancy vibe. It won't make you dance much, but it will be an ideal winter warmer for those long cold nights.

CD-ROM

Making Music

- Music Maker and Music Studio/Magix/ £30 each/ available from record shops
- Music Maker/Steinberg and Music Sales Ltd/ £25/ tel 01284 703097
- Music Machine/Pearson/ £30/ tel Charlotte Tookey 0171 331 3920



Uh-oh. Someone's been reading **Edge**. Or is it purely coincidental that, after committing to paper the details of how the music and computer (games) industries are discovering common ground, an avalanche of music CD-ROMs should surge from the depths of And that those CD-ROMs should themselves cover common ground when it comes to their names? Bear with us as we try to snatch order from the jaws of confusion.

We'd love to meet the person behind the concept of MusicMaker, from Steinberg Music Sales, because it's a deliciously silly CD-ROM. It comes with a tiny plastic keyboard, one and a half octaves long, which fits – we're not having you on, here, honest – on top of your PC's keyboard. You can use this to jam along with, or play the melody from, any one of 15 tracks which are spectacularly, mind-numbingly trite – La Bamba and Tears for Fears' Everybody Wants to Rule the World are typical examples. You can also drum along to these tracks by hitting different keys on your keyboard or tap out the melody rhythm with your space bar and let the software find the right notes. Against all the odds, this is actually quite a lot of fun. But suicide is the only option if someone actually catches you 'playing' with this CD-ROM. We can't believe that anyone would actually want to part with good money for it. Which is a shame, because if the music wasn't so laughable, it would be fine.

Magix' Music Maker 2.0 and Music Studio are an entirely different proposition: Music Maker 2.0 is a semi-pro arrangement program, which lets you assemble WAV files into your own tracks and Music Studio is a professional sampling/mixing program. Music Maker 2.0 also includes an old friend: Modified's FrEQuency, into which you can shove your newly assembled tracks. Neither CD-ROM is suitable for PC neophytes but they are easier to use than you'd expect. Music Studio, in particular, is pretty powerful – it can handle MIDI files, is packed with effects and is particularly good at generating loops. If you're interested in creating your own tracks armed with little more than a PC, these two offer an excellent starting point.

Pearson New Entertainment's Music Machine shows promise. The pre-alpha copy we managed to get our hands on lacks a few features – as one would expect. It still manages to expose things like Essential Mix CD-ROM and Sounds of the City: Manchester as the half-baked – if brave – efforts that they are. In spirit, Music Machine is similar to Modified's FrEQuency without the graphics. In execution it's far superior, simply because you don't need a degree in computer science and experience as a sound engineer in order to be able to use it.



Visually, it uses a recording studio







metaphor, with its various sections partitioned off into separate rooms. In the main room, you can select a basic rhythm track from a library (dance genres from reggae to jungle, via house are covered) and then you can move elsewhere in the studio complex to edit it. The arrangement room lets you assemble rhythm loops into a rhythm track and then plonk overdubs (snatches of guitar, vocals and so on) over the top. If you want, you can go to the recording room and sample your own overdubs from CDs or record straight into your PC. Having assembled your musical masterpiece, it's off to the mixing room for a final polish. Then you can record it to your PC's hard disk or a CD burner, should you be so lucky as to have one of those.

There's also a DJ's booth, which lets you take two tracks and mix them. Sadly, this is no less restricted than any of the virtual DJ's booths we've seen so far – it has about half the features of even the DJ set-up you'll find in your local Ritzys.

Surely it can't be 'that' tricky to create a reasonably authentic virtual DJ's booth? If only an organisation like sleepy old Technics was with it enough to undertake such a project – rather than merely make as much money as possible out of flogging 20-year-old kit. Luckily the virtual DJ's booth is only a peripheral part of Music Machine. Although it won't let you create your own pumping tracks from scratch, you will be still able to use the rest of the software creatively and derive much pleasure from it.

Silk Cut Magazine CD ROM

- Forward Publishing
- PC CD-ROM
- Free

Let's get this straight: smoking kills, right? It's not big or clever, right? Right. But some people who puff away like chimneys, having taken the conscious decision that they'd prefer lung cancer to senile dementia, can't help feeling sorry for the way in which the tobacco industry is becoming increasingly besieged and harassed by the powers that be. Its ceaseless demonisation is second only to that meted out to smokers.

So it's nice to see the tobacco industry fighting back – sort of – in the guise of this deeply strange CD-ROM developed by London-based company, Forward Publishing, and financed by the mild cig brand Silk Cut. It's a digitised version of a quarterly contract publication created by Forward, which goes out free to a Silk Cut mailing list and can only be described as a coffee-table magazine. Something to leave next to the ashtray. So that means we now have the world's first coffee-table CD-ROM.

If that sounds as appealing as a Sunday visit to Ikea, then you should shelve your prejudices. The CD-ROM is actually rather good. Beneath lush, arty production values are a number of entertaining features consisting of narration and beautiful photography, about people with interesting jobs, such as a record company A&R executive and a ferryman. There are some rather off-the-wall features, such as: a collection of some of the key moments of Trevor Howard and Celia Johnson's Brief Encounter, which you can pep up with some rather sarcastic interjections by right-clicking on floating icons; and an item on how to dance to various types of music, including – amazingly – jungle; and there are some deliciously silly games.

The best thing is that, if you fancy a copy of the Silk Cut CD-ROM, you can get it free simply by calling Forward Publishing on 0345 023554. Just tell them that you're an **Edge** reader – there's no need to even take up smoking.







Books

Microsoft Secrets

- Michael A Cusumano and Richard W Selby
- £20.00
- Harper Collins
- ISBN: 0-00-255692-8

How does Microsoft organise its time, money and people to produce the products that eventually find their way onto 80 percent of the world's desktop PCs? It's a question every budding computer magnate wants answered and, luckily for them, a question which Microsoft Secrets sets out to answer.

As strange as it may seem, taking a look at the last chapter of this book first would probably be a good idea. Here the authors pull together all the research and evidence gathered throughout the rest of the book and talk about what we all really want to know: will Microsoft still be around in the next five to ten years?

Most readers (especially those familiar with Douglas Coupland's witty Microsoft exposé, Microserfs) would probably have preferred a light approach to the subject matter. However, the authors here are consultants and therefore cast their cold clinical eyes over all of Microsoft, in agonising detail. Consequently, this is perhaps the ultimate 'how to' book for managers. It isn't a blueprint for how to set up a multi-billion dollar company but an analysis of how Bill did it. Whether or not this can be duplicated is a very difficult question to answer. It is perhaps left up to the readers to find out for themselves.

The last words should go to this book's authors: 'Microsoft is one of those rare companies where leadership, strategy, people, culture and opportunity come together to create an extraordinarily efficient organisation. This should be apparent whether a reader likes or dislikes Microsoft products or how the company behaves.'



War of the Worlds: The Assault on Reality

- Mark Slouka
- £9.99
- Abacus
- ISBN: 0-349-10785-8

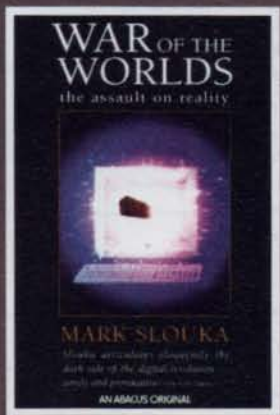
Slouka's common-sense counterblast against the proselytising arrogance of the most passionate of the techno vanguard like their disdain of carbon-based lifeforms without modems (ie parents) and their blind faith in the virtues of the virtual – is a much needed tonic. It's well argued, well written and well intended.

Slouka is a humanist not a Luddite. His quarrel is not so much with the technology that threatens to demote real life to a snivelling acronym (RL), but with the attitude of its self-appointed guardians. For all their blagging about hardwiring the collective consciousness, creating shining cybercommunities shriven of division (race, colour, gender) and participating in the last bastion of democracy, what Slouka really detects is rank escapism.

The big problems of Western society – like the loss of community, breakdown of the family, degradation of the environment – are not going to be solved by an ascent into a new electronic reality, the author contends. Morality matters only within the bounds of the physical world. 'It [is] our connection to the physical world that [gives] strength, courage, even love, their meaning,' he says.

And after observing users' behaviour on the Net, Slouka concludes that 'with the checks and balances of the real world barred at the door, all the worst in human nature quickly sets up shop'.

Put that in your Pipex and smoke it.



The JAMMA show is always a heady mix of the boringly familiar and the enticingly innovative. This year saw an influx of water skiing titles and, surprisingly, a car racing coin-op that offers something new

Aqua Jet





As with *Wave Race 64*, ramps litter each course. Unfortunately, the realistic first-person view does not afford players the luxury of looking before they leap (left)

With Nintendo's *Wave Race 64* debuting this month and jet-ski coin-ops already on the way from Konami and Sega, you might think that Namco have left it too late with *Aqua Jet*. However, on the evidence on show at JAMMA, the Namco game (which is the latest to use System Super 22) offers both the best graphics and a more comfortable, if less realistic playing position.

In the cabinet on show, the player stands; a contrast to Sega's Model 2 jetbike sim *Wave Runner* (E37). But, like those games, mastering the controls takes a little time. It's practically impossible to just point your jet-ski in a direction and drive in a straight line – it is essential that you learn to correctly anticipate and ride the waves around *Aqua Jet*'s island venue.

Early races take place 'inside' the island: around the tree-lined inlets and, in the game's most spectacular feature, over a waterfall. Jumping this doesn't take any skill, but it provides impressive hang time as you fly through the air and then momentarily sink beneath the surface of the water downstream.

On the more advanced levels, races take place around the coast of the island where waves are much stronger and more frequent. Also, the many ramps spread throughout the circuit force players to react quickly and maintain control as their jet-skis jump across the sea.

Judging by the quantity and quality of these jet ski titles, it seems that aqua skiing may well replace car racing in the hearts of game designers. It's about time something did.



Is jet-skiing set to replace car racing as the sport most eligible for arcade conversion?











Early *Aqua Jet* circuits follow inland waterways, but advanced players have to race around the treacherous coast of the island. Waves and jumps provide the obstacles





As you would expect from a Namco game, the System Super 22 polygon visuals are spectacular

Developer:	Namco
Release:	TBA
Origin:	Japan

GTI Club Côte D'Azur







Minis careering round sleepy Euro towns? An interactive 'Italian Job' would be a good way of describing Konami's latest arcade effort

Star of the JAMMA show, Konami's *GTI Club Côte D'Azur* is that rare thing – an innovative driving game. Races take place in small Southern French towns along the Côte and drivers are given the freedom to go where they like. The small rally cars can drive through a town's streets by any route – even via underground car parks, pedestrian boulevards and garage forecourts.

The towns themselves look very impressive – far more so than the visuals in Konami's other major new coin-op, *Jet Wave*, leading **Edge** to surmise that Konami has developed a new board for *GTI*. The layouts include steeply inclined streets and some T-junction corners so tight they have to be taken on two wheels.

Finding the fastest route is the key to success in the oneplayer game, but linked cabinets will offer the multiplayer Taisen Onigokko ('tag play') mode. In this, one car carries a bomb which explodes when a time limit runs out but the bomb can be shifted to another car by bumping into it.

One other feature Konami may include is a supercar available not upon completing the game, as is usual, but by showing extra money into the coin slot. The marriage between successful play and financial ruin is, it seems, as intimate as ever.





The messy, extravagant crashes will no doubt remind some players of Sega's *Daytona USA*



In the linkup mode, one car carries a time bomb which has to be quickly passed on to other drivers



The Gallic Côte setting and familiar, hatchback cars are great new touches. And who would have thought a Fiat Panda (far right) would have ever made it into a coin-op?





Developer	Konami
Release	TBA
Origin	Japan

Namco Museum Vol 4

Namco was the first company to plunder its videogame archives for arcade relics. Edge speaks to the team behind the latest in its *Museum* series







Namco's *Museum Vol 4* mixes well known classics like *Pac-Land*, *Assault* (bottom right) and *Ordyne* (above) with more obscure titles like *Return of Ishtar* and *The Genji and the Heike Clans*

As Namco's Museum series moves into its fourth installment, things are getting more difficult for the veteran arcade company. Earlier titles like *Galaxian* and *Gaplus* probably did not provide much of a challenge to port across: simply dump the original code in the PlayStation and then employ emulation software to run it. However, *Vol 4* includes games just too complex for this method.

Most significantly there's *Assault*, a top-view tank shoot 'em up, the first game to employ a brand new Namco arcade board back in 1988. The board allowed full rotation and scaling of sprites and backgrounds for the first time, giving it a unique look and feel. *Ordyne* a cute, side-scrolling shoot 'em up also made effective use of this screen-rotation technology, alongside some marvellous rainbow-like colour graduation.

Other titles on the disc are the seminal sideways-scroller *Pac-Land* and two more obscure Japanese hits, *Return of Ishtar* (one of the first titles to employ a password system, allowing players to access levels they had reached in previous sessions) and the catchily-titled *The Genji and the Heike Clans*. The former is a sequel to RPG-themed maze game *Tower of Druaga* and the latter a horizontally-scrolling samurai title.

It is *Assault* and *Ordyne*, with what was then state-of-the-art graphics, which will present the most difficulties to Namco's programmers. How do they plan to replicate these relatively advanced arcade titles on the PlayStation? To find out, **Edge** visited Namco's creative centre in Shin-Urashima, Tokyo and talked to the Museum team.

Edge First of all, the obvious question: how are games such as these converted to the PlayStation?

Namco Well, we have complete access to the original source code, so the programmer simply looks at the original title and then creates a new version for the Playstation. As for *Vol 4* specifically, although we have all the old material – images, music, etc – at our disposal, we can only use it for reference. Unfortunately, we cannot port the old code straight on to the PlayStation. We have to recode the games from scratch.

Edge The games featured in volumes 1-3 are simple by today's standards. Were *Assault* and *Ordyne* more difficult to convert?

Namco In some ways, yes. Because *Assault* and *Ordyne* are comparatively recent titles, the amount of data involved in both is much larger than we've previously dealt with. Consequently, the development process was more complex. It took us a lot of time to get them running on PlayStation.

Edge Does converting a game sometimes take as much time as designing a new arcade title?

Namco A conversion means essentially recreating an old game

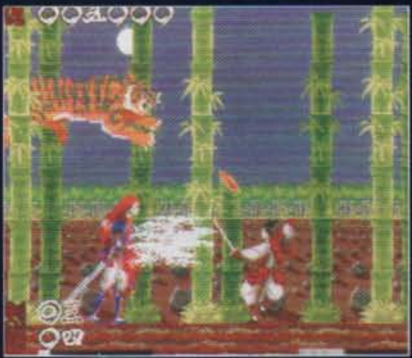
Format:	PlayStation
Publisher:	Namco
Developer:	In house
Price:	¥5,800 (£40)
Release:	Nov 18 (Japan)

Ordyne





This cute, colourful shoot 'em up used the same graphics board as *Assault*. It also featured impressive rotating backgrounds (above)





The Genji and the Heike Clans **(left) is a side-scrolling samurai fighting game, whereas** ***Return of Ishtar*** **(right) is a primitive RPG maze game. Namco has not ruled out converting more of these older titles**









Even eight years after the game's release, ***Ordyne*****'s complex sprite scaling and rotation could well present the PlayStation with a few difficulties**

so the research phase is very short. Furthermore, when you're writing a new game, you do not know what your goal is – you just try to make the best game you can. For the *Museum* conversions, we don't have to go that far. We can't improve the games we work on! We have to make exact copies of the old versions in a relatively short period.

Edge Are the conversions 100% identical to the originals ?

Namco The hardware capabilities are very different so we have to adapt our techniques. Basically though, the conversions are almost 100% accurate. The PlayStation actually has much higher specifications, although the CD-ROM loading times have been disappointing and for some animations we have had to lower the number of frames on the PlayStation version in order to retain similar graphics.

With some titles, the arcade original would occasionally slow down because of the amount of data involved but the respective PlayStation version would not. So, to stay faithful to the old games, we intentionally added slow down to the conversions.

Edge How many people work on the Museum collections?

Namco Between 20 and 30 people participate in each but many only help us temporarily. The team is often changing.

Edge Does the present team include anyone who worked on the original arcade titles?

Namco The original programmers did not participate directly with the the conversion team – it's difficult because many now have important positions in Namco. But they gave us some useful advice.

Edge Why do you think these old games are still so popular?

Namco Every ten years a new generation comes along so, even if an old game reappears on the market, I think it can be perceived as fresh and interesting. Moreover, old games have simple commands so everybody can play them. Their simplicity makes them easier to get involved with.

Edge What is your target audience for the *Museum* series?

Namco Mostly people who were students about 15 years ago, when many of the games on Volumes 1-3 were first released. People who are around 30 years old now.

Edge Is there a strong market for retro titles in Japan?

Namco Yes, maybe because they are simple or because they bring parents and children together. The father may have played old titles in the arcades. Now he can teach them to his children.

Edge Will volume 5 consist entirely of recent titles?

Namco We are converting games from different periods. It is true that *Vol 1* included old titles and the following volumes featured more recent ones. But we may decide to convert an old game for the latest collection. It depends on how good the game is.

Edge How do you select a game to develop?

Namco We conducted a survey to find out which were the most popular games and concentrated on converting those. We also talked to Namco's staff to find out which games are popular here.

Edge Have the *Museum* collections sold well?

Namco Volumes 1, 2 and 3 together sold about 600,000 copies in Japan which was very reasonable. In the USA, we sold between 80 and 90,000 copies of *Vol 1*. That's a good figure for the States. We hope the title will sell well in the UK too.



Wonder Boy **clone,** ***Pac-Land*****, was one of the first arcade games to feature a hero from an earlier title. Now it's all too common**



Pac-Land



After reading your last issue, I just had to write in and air my views on your interesting interview with Trip Hawkins. The impression I got was of a man who is very jealous of the success of Sega and particularly Sony in marketing their 32bit videogame platforms. He does not seem to realise that these two companies have in place millions of units around the world. He states: 'Well, they (Sony and Sega) can keep trying to sell them...'

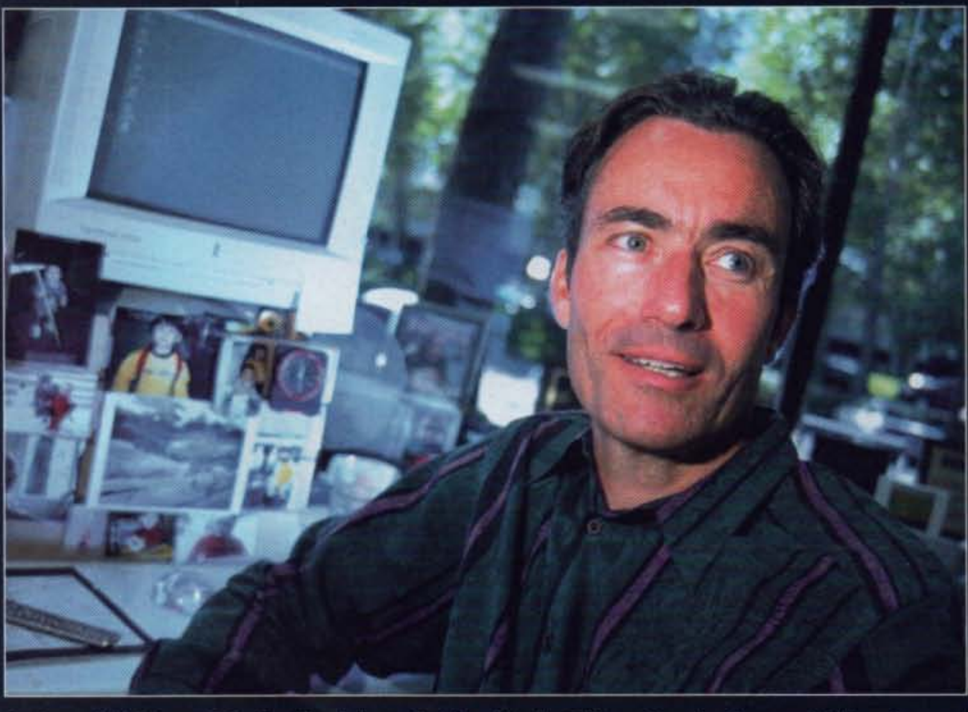
I don't think Sony and Sega are particularly 'trying' - yet they are selling thousands of their units each week.

As for Hawkins' argument about 64bit, you can have a 32bit processor with several 32bit ASIC RISC processors and produce the sort of graphics seen in *Daytona*... Oh, hold on, that *is* what powers *Daytona*.

The worst argument he kept mentioning time and time again through the interview was how the ultimate system will combine Internet, DVD and 64bit gaming in one product. When will this man learn his lesson? The 3DO was initially marketed as a multimedia system with the capability of playing games, V-CD and with the prospect of Internet access in the future. It failed. Yet again though, he is talking about combining them. Does he not realise that, if people want a CD player they go and buy a CD player not a PlayStation? His argument about DVD also holds little water. Its release has been extremely complicated by the demands of the US film industry and it is still unclear how successful it will be. This is even more true since JVC and several other companies recently reached an agreement on a new VHS system. This tape system is capable of holding several times the data of DVD while retaining the extremely important record function. It will be years before rewriteable DVD players become available - look how long the domestic CD-R player has taken to get on the market.

Altogether, I think it is lucky that Matsushita has taken over development of the M2, from The 3DO Company] otherwise we may well have ended up looking at a '3DO part 2'.

Paul Owen,
West Wimbledon,
London



Controversial 'visionary' Trip Hawkins believes that the ultimate 64bit machine should support DVD and Internet access. Sounds like his initial visions for 3DO. 'When will this man learn his lesson?' asks Paul Owen

I happen to think that the N64 will not feature as a vital contender in the UK. The reason is simple: it's too late.

The UK and Europe generally have always suffered in the videogame market. This has been redressed to some extent by Sony and Sega. Nintendo however, seems content to service its potentially more important markets in Japan and the US.

Furthermore, I think that, historically, Nintendo had success with three main genres: the platformer (Mario), the beat 'em up (the original SF2 practically sold the SNES in Europe) and the RPG. No one will argue with giving Mario 64 a ten - but I do not think that platformers form the most important genre for next gen buyers.

If, like me, you graduated from the 16bit SNES and have retained the cream of 16bit titles, you have all the classic platform action you could wish for. *Killer Instinct* in whatever form will be an important seller for the US market but it does not impress in the same fashion as *VF2* or *Tekken 2*. And undoubtedly Nintendo suffered a major blow from the withdrawal of Squaresoft support. Of course a new DD version of *Zelda* will make amends but there will not be the same level of output as before. Bad news then for the domestic market.

The N64 currently does not have any real support for another important category: the driving sim. *Crusin' USA* just does not compete with *Sega Rally* or *Ridge Racer Revolution*.

As for some other Nintendo arguments, Howard Lincoln's comment about 32bit games offering little more in terms of quality than 16bit titles was utter

rubbish. 16bit hardware just cannot handle 3D intensive gameplay - even with additional (and expensive) chips. Anyone want to swap a more expensive SNES *Doom* for the PlayStation version? No... I didn't think so.

As for the idea that Nintendo is saving the market by ensuring the 'dream team' only produces top software. Nintendo was just as guilty as anyone for allowing substandard rubbish onto the market in the 16bit era. When money is at stake, Nintendo will certainly drop any grand ideals it has at the moment.

Finally, with a higher unit cost for software and much less choice, it is going to be a very rich gamer and one with an extremely limited interest range who will be truly satisfied with a Nintendo machine for the first 12-18 months of its life.

D Sandison,
Basildon,
Essex



Michael Gryzwacz thinks that Japanese companies care little about the European market. UK games like *Wipeout* may change their priorities

I've been reading **Edge** since issue one and have constantly been impressed by the impartiality and seriousness of its coverage of the industry, as well as its style of presentation: more mature than that of other magazines. There are, however, a few points I would like to make.

Firstly, isn't it possible that Nintendo's 'dream team' strategy - of having only a small group of elite publishers producing games for its system - is more for Nintendo's own benefit than for the industry's?

Nintendo is a cartridge-based company and it manufactures all cartridges. Any slump in the industry will inevitably see publishers retreating from the lower-profit N64 business and instead concentrating on CD systems where costs are not so high and risks less.

By reducing the number of developers publishing for the N64, Nintendo are only delaying the inevitable slump which will happen when too many publishers rush into a market where the profits are ludicrously thin on the ground.

Secondly, you've given the new Saturn analogue joypad short shrift in your magazine. I've recently bought one and I found its fuller, rounder shape means that it can be gripped more firmly, by all of the hand rather than just the fingers.

The buttons, too, are a joy, responsive and well built, with everything in easy reach. In your enthusiasm for Nintendo's 'revolutionary controller', you seem to have ignored this fine product. I haven't used an N64 joypad yet, but it looks spindly, akin to the PlayStation pad, which is too small to be truly comfortable.

Ciaran J McGrath,
Co Down,
N Ireland

Nintendo's motives for selecting a limited 'dream team' of third party developers has been hotly debated since the conception of the machine and, although theories have been put forward to the contrary, you are probably right to argue that Nintendo was not thinking of saving the industry as a whole when it decided on this approach. Despite Mr Yamauchi's vitriolic speech at Shoshinkai last year (E29), altruism is rare in business.

However, it is unlikely that the cost of producing cartridges will have influenced the company's decision. The game producers themselves have to pay for cartridge production, not Nintendo. So if there is a slump in business, it would be the former who suffered financially from making too many carts. It is more likely that, by preventing poor third party developers from producing sub-standard N64 titles, Nintendo hopes to maintain the prestige of the machine and therefore its appeal.

As for your second point, although the Saturn joypad may well be comfortable and easy to use, **Edge** was correct in its referral to the N64 pad as an advance. No other significantly mass-produced pad before it featured both analogue and digital controls. It is also very comfortable and unique in appearance: as you will find out for yourself when Nintendo deigns to release the N64 in Britain. And while on that particular subject...



Is Yamauchi's N64 'dream team' concept an example to the games industry or merely an exercise in damage control?

I strongly feel that Europe as a whole is being completely ignored by the industry and thought of as 'a little extra cash in the pocket' by the large electronics companies. As a result of this, we receive consoles, games and other things not just last but also exceedingly late. When we finally do get them, they aren't up to the full-speed, full-screen versions seen in Japan and the US. And to top everything, after all these imperfections, they cost a hell of a lot more than the Japanese and US versions. We have let this go on too long and can't let it go on any more. The large companies should have learned this from their other consoles they released in Europe in the past.

The N64 has built up a huge amount of hype as being mind-blowingly amazing, which means that, in the large gap of time between its release in Japan and its premiere in Europe, the anticipation and desire to own one will increase tenfold. When it is finally released here, if it runs in the usual PAL format (letter boxed screen, slow speed) everyone will be highly disappointed. Most people will buy import versions. Nintendo will see the sales drop drastically in Europe and the company begin to think that Europe is a pointless investment altogether.

It may seem over the top but it's quite possible that, in the not to distant future, some new Japanese consoles will not even make it over to Europe. What does **Edge** think about this thorny issue and what actions do you think can be taken to actually get some results?

Michael Grzywacz,
address withheld

Short of extraditing 500,000 avid Japanese gamesplayers into Europe, **Edge** can see no solution to the big Japanese companies' continued disregard for the European market. Hardware/software sales in Britain, France and Germany are a mere blip compared to those in Japan and the US, so, in financial terms, this is a low priority area.

However, even if Europe is not particularly profitable in economic terms, it is in terms of creativity. Games like *Total NBA* and *Wipeout 2097* have or will become benchmark 32bit titles and the chances are that if the PlayStation hadn't been released in Europe, these games would

Continued next page

viewpoint

Continued

never have been developed. And no doubt Rare will be making an equally important contribution toward the success of the N64. In effect then, no one can afford to take Europe completely out of the equation.

I cannot believe that end and reward sequences are still being callously neglected by western software companies. Throughout the 16bit era, I played hundreds of games which were extremely playable but the moment you expected some reward for your gamesplaying, all that was shown was some black screen with white text.

The programmers said they didn't have enough space for any special sequences but this seemed extremely unjustified when the equivalent Japanese software was lavished with start-up sequences, intermission screens and end sequences.

And still the situation exists. There are many culprits, but one company that seems to particularly revel in destroying gameplayers' enjoyment is Psygnosis. *Adidas Soccer* has no pre-match build-up, the goal celebrations are shallow and the game is completely devoid of after-match victory sequences.

Also, witness *F1*. After winning a race, all you get is the drivers' points table. Surely this situation is ridiculous and there aren't any excuses except lack of thought within the design team.

Next-gen Japanese software is lavished with amazing sequences, especially at the end of games. These examples should be shown to western developers - maybe then they will wake-up.

You may say this is trivial but I've have had enough of spending considerable time with a game, only to be left in the cold at its lack of rewards or incentives.

Leon Cory, Slough, Berkshire

Edge agrees that end sequences are an important part of certain games, especially adventure or platform titles where you can spend weeks playing towards one ultimate objective. To be left unrewarded after such an effort can be very frustrating.

However, surely it would get a little tiresome if, after every race in *F1*, you had to put up with a prerendered scene of some drivers spraying champagne over each other? Isn't the 'thrill' in *F1* to be found in beating your opponent or thrashing a previous time, not in viewing some tacked on CG footage?

Remember, game designers have to take into consideration the tastes of different players. Although you like extended goal celebrations and pre-match build-ups, many players see them as annoying intrusions which break up the flow of the game.

If the majority of players skip the flashy sequences, why should they spend time and money putting them in?



Leon Cory believes that UK games lack decent conclusion sequences. *Resident Evil* (top) ends with a bang, *F1* (inset) manages a whimper

I have little doubt that only one machine can lead us into the ultimate next-gen games experience and it isn't the N64 - at £70 a game, only lottery winners need apply. As far as I can see, the PlayStation won't cut it much either. With current software already using most of the power available, it doesn't hold out much for the future.

No, the only machine that makes it for me is the Saturn. Its multiple CPU architecture makes it more powerful than the PlayStation, it is CD based, and there is a wider variation of games coming out for it. The Saturn's capabilities have yet to be fully explored.

However, I believe that Sega's (and Sony's) move to introduce a budget line of software is the wrong approach to take. It will go the same way as the Amiga games market, with people reluctant to purchase new releases at full-price: they will wait for the re-release. This will put a stranglehold on the quality and quantity of new releases and faith in the format will be lost.

Instead, I think that the solution is to lower the standard games price to about the £30 point. This would make life difficult for N64 carts and would bolster 32bit sales.

Olly Staple, Colyton, Devon

Your argument that the Saturn must be more powerful because of its twin CPU set-up is rather specious and inaccurate. Although the two units can be 'sent off' to perform different tasks, they have to be synchronised in their actions, which means they never truly achieve double the processing power of a single CPU.

Furthermore, 'power' is an arbitrary term. The Saturn is much more powerful when it comes to handling bitmapped backgrounds and playfields (the 60fps arenas and backdrops in *Virtua Fighter 2* for example) but it cannot handle transparencies and lighting in such an assured way as the PlayStation. The two machines are so different in terms of internal architecture, it is impossible to determine which one is ultimately more powerful.

It is now much healthier to concede that the PlayStation, the Saturn and the N64 all have their pros and cons and that the game scene would be a poorer place if only one of them was around. Monopolies, as history has taught time and time again, always lead to stagnation.

I agree totally with Grant Sutcliffe and William Matrix Dark's views regarding PCs in the home (E36 letters). My neighbour has just spent £1300 on a P133 and is very disappointed with it. It plays games no better than my 3DO and is no better for college work than the A1200 he flogged.

What we need is a next generation Amiga or Archimedes, capable of playing games to match a Saturn but with a keyboard and some decent applications. Maybe Amiga's new owners will be able to do something but I fear not, for the home PC plight has surged now.

Probably the closest we had was the A1200 but it needed a CD-ROM to supercharge it. Maybe an Acorn Archimedes would suffice - most schools use them, so a beefy home version would be just the ticket.

I suspect that if, for example, Sega were to launch an encyclopedia (or similar information store, usually seen on PC CD-ROM) on the Saturn, it would be a great success. If it had a decent enough interface styled for ease of use, it would probably bolster many people's cases for purchasing a next generation console. At least in their parents' eyes!

I hope companies realise this before the opportunity is missed.

Ian Cooper, Dorset



High-end PCs are desirable pieces of computer kit but are they always suitable for the average home user?

Your neighbour has learned the hard way that the old cliche 'look before you leap' is particularly relevant when it comes to purchasing computer hardware. He really ought to have thought more carefully about what he planned to use a new PC for before slashing out over a thousand pounds on one.

Having said that, if gameplaying was your neighbour's main concern, his disappointment should diminish when he sees *Quake* and realises that it is better than any equivalent on the 3DO.

As for your encyclopedia point: Sega has announced that a netlink will be available for the Saturn next year (see E34) allowing console users to 'surf' the Internet, the greatest encyclopedic resource known to man.

I am grateful to Matthew Stibbe (E37) for his flattering (and most sincere) comments relating to my idea to come up with a game based around the Knights Templar. Sadly, I can assure him that there is no conspiracy or double bluff.

But as proof and in support of my claim to have been working on the idea for over three years, I enclose a photograph taken by Generation 4 magazine in an 'On the Trail of the Templars' feature. It shows me and my six-month-old daughter (who is now over four) in the Paris catacombs. Behind us are the remains of several million Parisians. When the medieval authorities felt that too much land was occupied by cemeteries, they simply dug up the graves and stacked the bones in the catacombs. I recommend this place as well worth a visit.

I have heard very good things about *Azriel's Tear* and look forward to playing the game. My comment about coming up with the idea was somewhat tongue-in-cheek and was intended to answer those suggesting we'd copied the idea. I fully accept that Matthew and his team came up with the idea independently of Revolution and wish him success with his game.

Charles Cecil,
Revolution Software,
York

As *Time Gate* (E31) also uses the Knights Templar theme, perhaps **Edge** will soon receive a letter from Hubert Chadot of Infogrammes claiming that he actually came up with the idea in a former life...



Revolution's Charles Cecil with daughter, deep within the Paris catacombs. Proof that Revolution thought of the Templar theme first?

Q and A

Rely on Edge to cut through the technobabble. Write to Q&A, Edge, 30 Monmouth Street, Bath, BA1 2BW or email edge@futurenet.co.uk

Q I am saving up for a PlayStation and would like some questions answered:
1. When is the next price decrease expected for the PlayStation?
2. Considering the arrival of the N64 and M2 technology in the UK, how long do you think the PlayStation's lifespan is?
3. Will PlayStation 2 be a 64bit machine? When is it expected to arrive in Japan?
4. Is it worth waiting for M2? When will it arrive in the UK?
5. Will M2 software be more affordable than the N64 (as the M2 is CD based)? Also what do you think will be the hardware retail price in the UK?

Andrew Walker,
Reading

A 1. Rumours are rife that there will be another PlayStation price decrease before Christmas, perhaps to £150, but Sony is vehemently denying these reports.
2. The PlayStation has a large user base, and literally hundreds of developers are working on projects for it. Therefore, it is unlikely that the machine will suddenly become obsolete, regardless of 64bit competition. However, Sony is naturally researching new videogames technology and the PlayStation will probably last another few years before enforced obsolescence takes its toll.
3. Sony's R&D is known to be working on a new machine, which will surely have to be at least 64bit to compete with forthcoming rivals. No details have been released as yet, though, and a conservative estimate would predict its arrival around 1998 or 1999. And before you ask, backward compatability is unlikely, to say the least.
4. A release date for M2 has not been announced – even for the Japanese market – so Europe will not see the machine for at least 12-18 months. As promising as Matsushita's hardware looks, you'll obviously miss out on some marvellous titles if you wait that long to buy a console...
5. Again, nothing official has been released. When M2 hardware and software prices have been confirmed in Japan, **Edge** will be in a better position to speculate over British equivalents. However, Hiroyuki Sakai, software development producer at Panasonic Wondertainment, told **Edge** (E37) that the M2 machine itself is likely to retail for less than the PlayStation when it was first released (¥39,800 - £250). Perhaps Matsushita is also planning to undercut its rivals with software prices...

Q Will There be an M2 upgrade for the FZ10 (below)? If so when and how much will it cost?

Jim Danzeos
London



A Matsushita is concentrating on developing M2 as a stand alone platform (see news, E37). Plans to produce an upgrade for the 3DO have been considered, but the Japanese company will possibly not place as much importance on this as The 3DO Company would have done. Therefore, no price or release date can be given.

Q I would like to ask **Edge** the following questions regarding the new Saturn internet link:
1. Would it be possible to use the soon to be released American version on a Japanese machine?
2. The obvious attraction for getting one is the ability to run netlink games such as *Daytona CCE* and *Sega Rally Plus*. Would I then have a problem with me being in the UK and my opposition being in the US or Japan, presuming that I would go through my Demon account?
3. Is there a UK version planned? In which case question 1 would apply, and would I then have a different problem, the case being that I'm running a non-PAL system?

Simon Blencowe
simon@shuloch.demon.co.uk

A 1. Yes, it should work, but you'll need a telephone socket adaptor.
2. In theory this shouldn't be a problem, but the crucial element is speed (data latency may slow games down drastically). *Sega Rally Plus* should support direct dialling to an opponent.
3. Yes, the UK version is due at around Easter '97 and will obviously be the best option for European Saturn owners. Sega has informed **Edge** that compatibility with foreign Saturns is not absolutely assured and may well not be possible – stay tuned for more news.

next month

Continued Edge 40



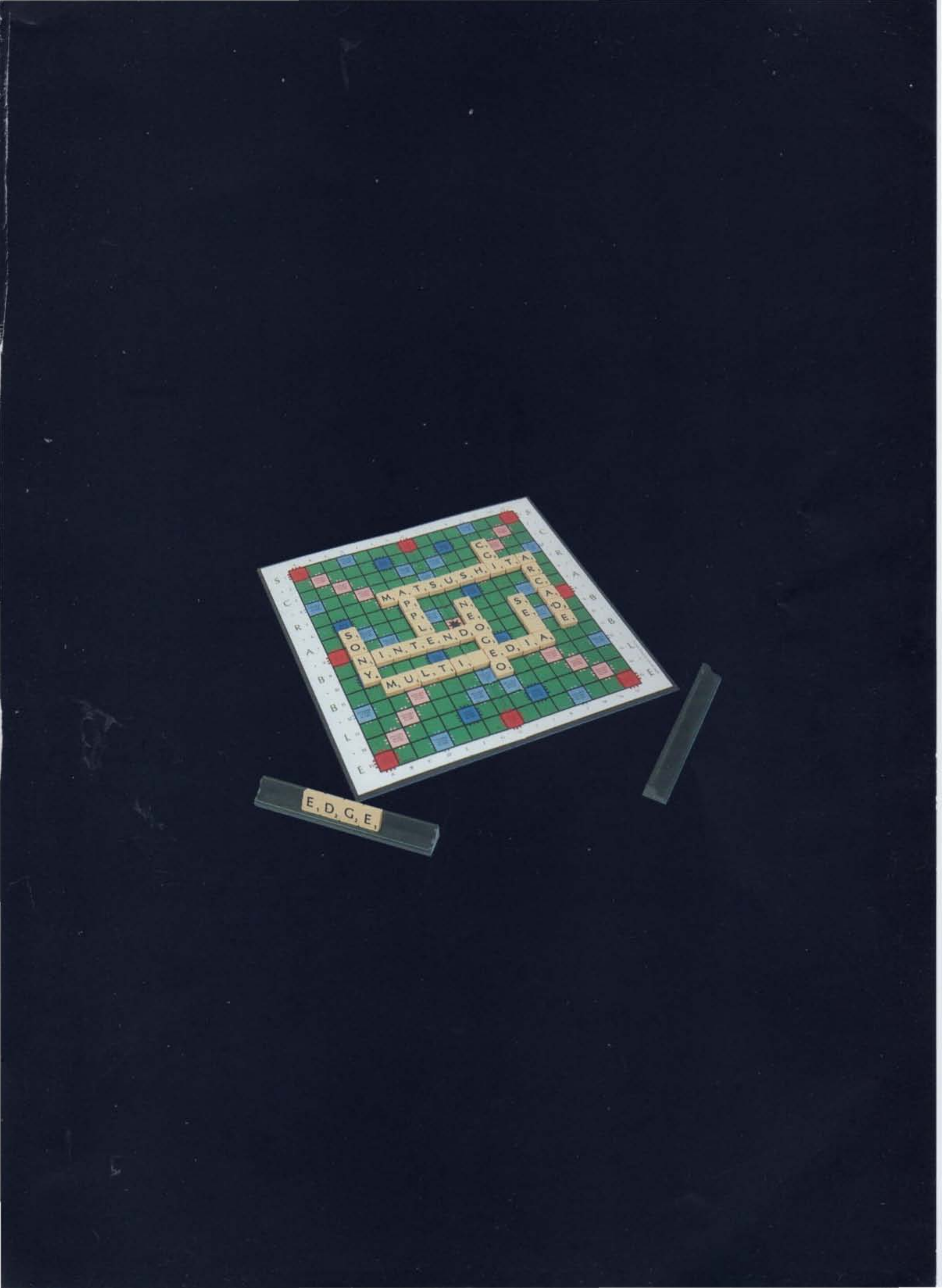
From top left, clockwise: PowerVR *Rave Racer*, *F1*, *Tomb Raider*, *Scorched Planet* and *Wipeout 2097* all running on 3Dfx's Voodoo graphics card

The PC's graphical abilities have long played second fiddle to Japanese consoles, but few 3D cards to hit the market have come close to delivering the power of any 32bit gamebox. Until now, that is. As state-of-the-art 3D technology such as 3Dfx Interactive's Voodoo graphics hardware and VideoLogic's PowerVR is readied to hit the shelves, **Edge** puts the leading contenders through their paces and speaks to the developers who are convinced that this is the beginning of a new era in high-end PC gaming.

Also inside **E**40, Matsushita: a videogaming force to be reckoned with? If the claims are to be believed, M2 is the stuff of videogame developers' dreams. If all goes according to plan, **Edge** will have a long-awaited exposé of the finished machine, the first titles in development and reactions from those that will make or break its future.

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